harman/kardon

HK3375/HK3475

STEREO RECEIVERS

SERVICE MANUAL

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ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge build-up or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical change sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together or your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

PRODUCT SAFETY NOTICE

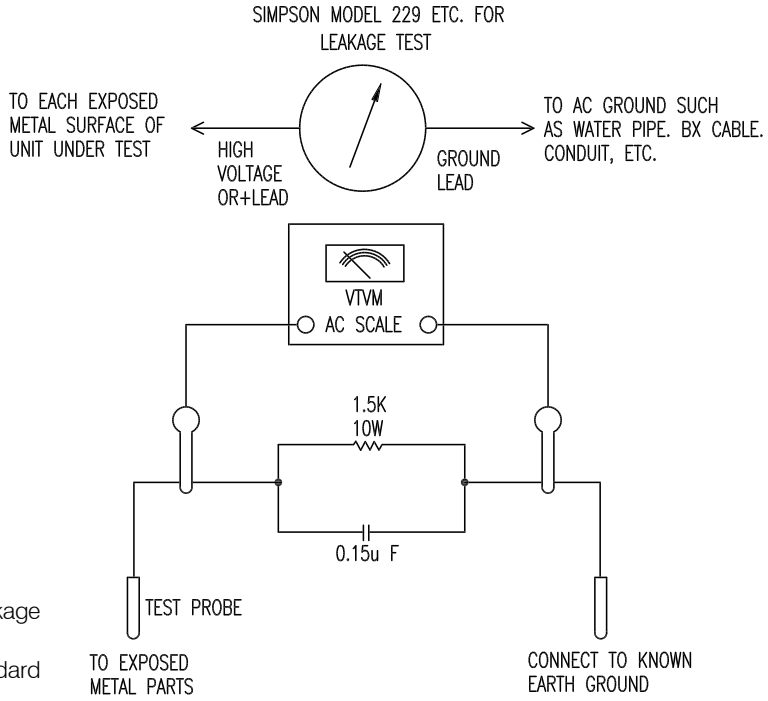
Each precaution in this manual should be followed during servicing.

Components identified with the IEC symbol ⚠ in the parts list are special significance to safety. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before retuming the product to the customer.

LEAKAGE TEST(FOR SERVICE ENGINEERS IN THE U.S.A)

Before returning the unit to the user, perform the following safety checks :

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fish-papers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. Which were removed for the servicing are properly re-installed.
3. Be sure that no shock hazard exists ; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows : Plug the power cord directly Into a 120 volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 ohms, 10watt Resistor paralleled by a 0.15uF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See diagram) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



Specifications

FRONT AMP SECTION

	Nominal
Continuous Power Output	
(STEREO MODE), Input: CD	≥75W
THD: 0.07%, 8ohms	
Both Channel Driven (20Hz - 20KHz)	
(STEREO MODE)	≥100W
THD: 0.2%, 4ohms, Input: CD	
Both Channel Driven (20Hz - 20KHz)	
THD at 65W, 8ohms, Input: CD	
20Hz	≤0.05%
1KHz	≤0.05%
20KHz	≤0.05%
IM Distortion at 50W, 8ohms,	
	≤0.05%
Input Sensitivity for Rated Power Output	(70W)
Tape Monitor/CD/AUX/TAPE2	200mV
Phono	2.5mV
S/N Ratio Input Shorted at 1KHz 70W Output (WTD IHF-A)	
CD	≥100dB
Tone Control	
Bass: 100Hz	+10dB
	-10dB
Treble:	+10dB
	-10dB
Frequency Response at -3dB	
Mode: Stereo, Ref: 1KHz, 10Hz-120KHz 15Hz-100KHz	
Channel Crosstalk Input Shorted by 1Kohms	
100Hz	≥70dB
1KHz	≥70dB
10KHz	≥50dB

High Instantaneous Current Capability (HCC)	±42 amps
Transient Intermodulation Distortion (TIM)	Unmeasurable
Rise Time	16µsec
Slew Rate	40V/µsec

FM SECTION

	Nominal
Tuning Cover Range: 100KHz Step	87.50 - 108.00MHz
Mono Usable Sensitivity (75ohms Input,98MHz)	
	≤13.5dbf
Image Rejection (at 98MHz)	≥80dB
IF Rejection (at 98MHz)	≥100dB
50dB Quieting Sensitivity (at 98MHz, 100% MOD.)	
IHF Band Pass Filter	
Stereo	≤41.2dbf
Distortion (1KHz, 100% MOD. at 98MHz, 65dbf Input)	
IHF Band Pass Filter	
Mono	≤0.3%
S/N Ratio (500 Input, 100% MOD. at 98MHz)	
IHF Band Pass Filter	
Stereo	≥72dB
Frequency Response (-3dB)	
De-Emphases: 75μs	20Hz - 15KHz
AM suppression at 98MHz	
	≥52dB
Muting threshold (at 98MHz)	35.2dbf
Overload Distortion at 98MHz	0.3%
Capture Ratio at 65dbf	≤1.5dB
Stereo Separation (at 98MHz, 100% MOD.,500 μN Input)	
IHF Band Pass Filter	≥40dB
1KHz	
Tape out Level (at 98MHz)	50mV

Selectivity	±400kHz, 65dB
Tuner Output Level	1kHz, ±100kHz Deviation, 500mV

GENERAL

Power Consumption	
At Rated Power All Channel Driven	436W
Idling at Minimum Volume Control	72W
Power Supplies	AC 120V, 60Hz
Dimensions (W×H×D)	
inches	17.4×6.1×16.3
mm	442×156×415
Weight (lbs/kgs)	24.6/11.2

AM SECTION

	Nominal
Tuning Cover Range: 10KHz Step	520 - 1710MHz
Usable Sensitivity	
999/990KHz	≤500$\mu N/m$
Image Rejection (at 999KHz)	≥35dB
AGC Figure of Merit (From 100mV/m at 999/1000KHz)	
	≥55dB
Distortion (999/1000Hz, 30% MOD. 50mV/m Input)	
	≤1.0%
Frequency Response (999/1000KHz) at -6dB	
	80Hz - 2.3KHz
Selectivity (at 999/1000Hz)	
9KHz / 10KHz	≥25dB
S/N Ratio (999/k1000KHz, WithAntenna Input 50mV/m)	
	≥40dB
Overload Distortion at 98MHz	
	≥1%
Tape out Level at 999/1000KH (5mV/m Input)	

FRONT AMP SECTION

	Nominal
Continuous Power Output	
(STEREO MODE), Input: CD	≥110W
THD: 0.07%, 8ohms	
Both Channel Driven (20Hz - 20KHz)	
(STEREO MODE)	≥140W
THD: 0.2%, 4ohms, Input: CD	
Both Channel Driven (20Hz - 20KHz)	
THD at 65W, 8ohms, Input: CD	
20Hz	≤0.05%
1KHz	≤0.05%
20KHz	≤0.05%
IM Distortion at 75W, 8ohms,	
	≤0.05%
Input Sensitivity for Rated Power Output	(100W)
Tape Monitor/CD/AUX/TAPE2	200mV
Phono	2.5mV
S/N Ratio Input Shorted at 1KHz 100W Output (WTD IHF-A)	
CD	≥100dB
Tone Control	
Bass: 100Hz	+10dB
	-10dB
Treble:	+10dB
	-10dB
Frequency Response at -3dB	
Mode: Stereo, Ref: 1KHz, 10Hz-120KHz 15Hz-100KHz	
Channel Crosstalk Input Shorted by 1Kohms	
100Hz	≥70dB
1KHz	≥70dB
10KHz	≥50dB

High Instantaneous Current Capability (HCC)	±45 amps
Transient Intermodulation Distortion (TIM)	Unmeasurable
Rise Time	16μsec
Slew Rate	40V/μsec

FM SECTION

	Nominal
Tuning Cover Range: 100KHz Step	87.50 - 108.00MHz
Mono Usable Sensitivity (75ohms Input,98MHz)	
	≤12.2dbf
Image Rejection (at 98MHz)	≥80dB
IF Rejection (at 98MHz)	≥100dB
50dB Quieting SEnsitivity (at 98MHz, 100% MOD.)	
IHF Band Pass Filter	
Stereo	≤41.2dbf
Distortion (1KHz, 100% MOD. at 98MHz, 65dbf Input)	
IHF Band Pass Filter	
Mono	≤0.3%
S/N Ratio (500 Input, 100% MOD. at 98MHz)	
IHF Band Pass Filter	
Stereo	≥72dB
Frequency Response (-3dB)	
De-Emphases: 75μs	20Hz - 15KHz
AM suppression at 98MHz	
	≥52dB
Muting threshold (at 98MHz)	35.2dbf
Overload Distortion at 98MHz	0.3%
Capture Ratio at 65dbf	≤1.5dB
Stereo Separation (at 98MHz, 100% MOD.,500 μV Input)	
IHF Band Pass Filter	≥40dB
1KHz	
Tape out Level (at 98MHz)	50mV

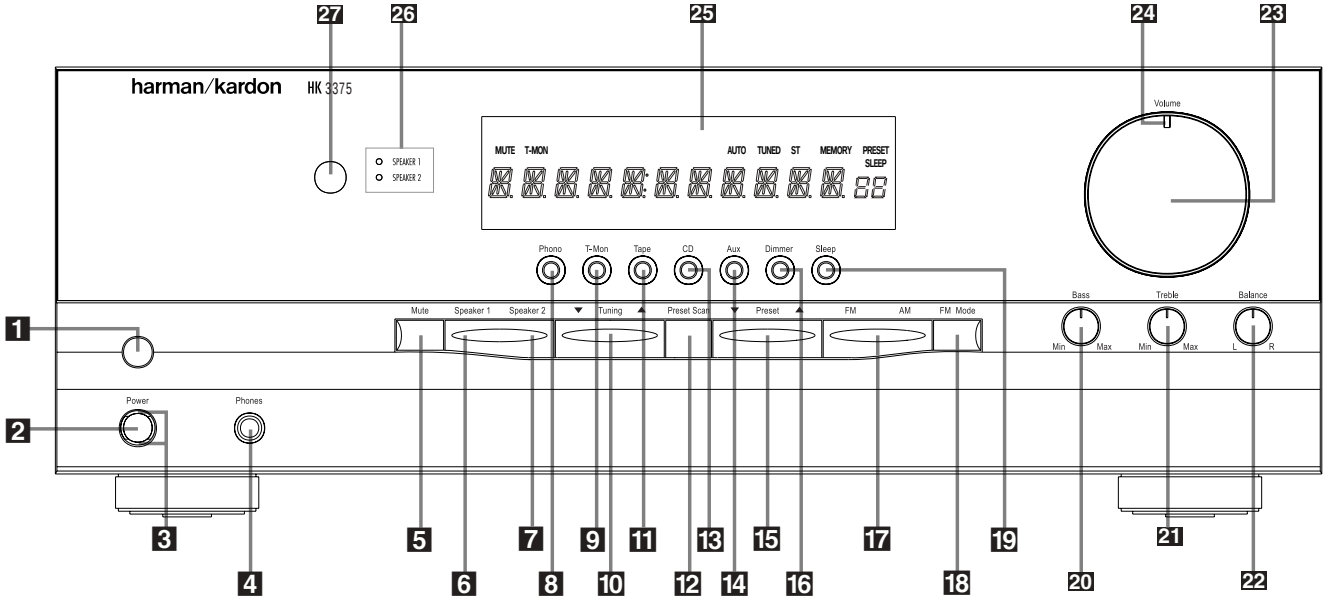
Selectivity	±400kHz, 65dB
Tuner Output Level	1kHz, ±100kHz Deviation, 500mV

GENERAL

Power Consumption	
At Rated Power All Channel Driven	575W
Idling at Minimum Volume Control	72W
Power Supplies	AC 120V, 60Hz
Dimensions (W×H×D)	
inches	17.4×6.1×16.3
mm	442×156×415
Weight (lbs/kgs)	24.6/11.2

AM SECTION

	Nominal	Limit
Tuning Cover Range: 10KHz Step	520 - 1710MHz	
Usable Sensitivity		
999/990KHz	≤500μV/m	≤1000μV/m
Image Rejection (at 999KHz)	≥35dB	≥30dB
AGC Figure of Merit (From 100mV/m at 999/1000KHz)		
	≥55dB	≥50dB
Distortion (999/1000Hz, 30% MOD. 50mV/m Input)		
	≤1.0%	≤1.5%
Frequency Response (999/1000KHz) at -6dB		
	80Hz - 2.3KHz	100Hz - 2KHz
Selectivity (at 999/1000Hz)		
9KHz / 10KHz	≥25dB	≥20dB
S/N Ratio (999/k1000KHz, WithAntenna Input 50mV/m)		
	≥40dB	≥35dB
Overload Distortion at 98MHz		
	≥1%	≥1.5%
Tape out Level at 999/1000KH (5mV/m Input)		


harman/kardon
HK 3375
SPEAKER 1
SPEAKER 2
MUTE T-MON
AUTO TUNED ST MEMORY PRESET SLEEP
Volume
Phono T-Mon Tape CD Aux Dimmer Sleep
Mute Speaker 1 Speaker 2 Tuning Preset Scan Preset FM AM FM Mode
Bass Treble Balance
Min Max Min Max L R
Power
Phones
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

1 Main Power Switch
2 System Power Control
3 Power Indicator
4 Headphone Jack
5 Mute
6 Speaker 1 Selector
7 Speaker 2 Selector
8 Phone Input Selector
9 T-Mon Input Selector
10 Tuning Button
11 Tape Input Selector
12 Preset Scan
13 CD Input Selector
14 Aux Input Selector
15 Preset Selector
16 Dimmer Button
17 FM/AM Selector
18 FM Mode Selector
19 Sleep Button
20 Bass Control
21 Treble Control
22 Balance Control
23 Volume Control
24 Volume/Mute Indicator
25 Information Display
26 Speaker Selection Indicators
27 Remote Sensor Window

1 Main Power Switch: Press this button to apply power to the HK 3375. When the switch is pressed in, the unit is placed in a Standby mode, as indicated by the amber LED **3** surrounding the System Power Control **2**. This button MUST be pressed in to operate the unit. To turn the unit off and prevent the use of the remote control, this switch should be pressed until it pops out from the front panel so that the word "OFF" may be read at the top of the switch.

NOTE: In normal operation this switch is left in the "ON" position.

2 System Power Control: When the Main Power Switch **1** is "ON," press this button to turn on the HK 3375; press it again to turn the unit off. The Power Indicator **3** surrounding the switch will initially turn red as the HK 3375 performs a self-check, and it will change to green when the unit is on and ready for use.

3 Power Indicator: This LED will light in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is turned on, the indicator will briefly turn red, and then change to green. A red indicator during normal operation means that the unit is in the Protect mode, and should be turned off and then checked for a possible speaker-wire short circuit.

4 Headphone Jack: This jack may be used to listen to the HK 3375's output through a pair of headphones. Be certain that the headphones have a standard 1/4" stereo phone plug.

5 Mute: Press this button to momentarily silence the speaker output of the HK 3375.

6 Speaker 1 Button: Press this button to turn the speakers connected to the Speaker 1 Output Terminals ⑰ on or off.

7 Speaker 2 Button: Press this button to turn the speakers connected to the Speaker 2 Output Terminals ⑱ on or off.

8 Phono Input Selector: Press this button to select the output of a turntable that is connected to the Phono Inputs ⑥.

9 T-Mon Input Selector: Press this button to listen to the output of a tape recorder connected to the Tape Monitor Inputs ⑨. The T-Mon Indicator **I** will light to indicate that the input source is being monitored when the HK 3375 is connected to a three-head tape deck or another unit with off-head playback.

10 Tuning Button: Press the left side of the button to tune lower-frequency stations and the right side of the button to tune higher-frequency stations. When a station with a strong signal is tuned, the TUNED Indicator **F**

will light in the Information Display 25. A brief (1/2-second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception.

11 Tape Input Selector: Press this button to listen to the output of a tape recorder or other device connected to the Tape 2 Inputs ⓫.

12 Preset Scan: Press this button to automatically scan through the stations that have been programmed in the HK 3375's memory. The tuner will play five seconds of each station before moving to the next preset station. To stop the scan when the desired station is heard, press the button again. If no preset stations have been programmed into the HK 3375's memory, the message 0 PRESET will flash in the Information Display 25 when this button is pressed. (See page 15 for more information on the tuner memory system.)

13 CD Input Selector: Press this button to listen to the output of a CD player connected to the CD Inputs ❼.

14 Aux Input Selector: Press this button to listen to the output of a device connected to the Aux Inputs ❽.

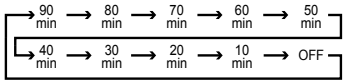
15 Preset Selector: Press this button to step up or down through the list of stations that has been entered into the preset memory. If no preset stations have been programmed into the HK 3375's memory, the message 0 PRESET will flash in the Information Display 25 when this button is pressed. (See page 15 for more information on tuner programming.)

16 Dimmer Button: Press this button to dim the front-panel displays and indicators. The first press of the button will dim the displays to one-half normal brightness; the next press will turn all displays off except for the Power Indicator 3 and the Speaker Selection Indicators 26. When the panel is dimmed, it will return to normal brightness after the unit is turned off, then on again.

17 FM/AM Selector: Press this button to select the tuner as the input to the receiver. When the tuner is in use, press this button to change between the AM and FM frequency bands.

18 FM Mode Selector: Press this button to select the Stereo or Mono mode for FM tuning. In the Stereo mode, a STEREO Indicator E will light in the Information Display 25, and stereo reception will be provided when stations are transmitting stereo signals. In the Mono mode, the left and right signals from stereo broadcasts will be mixed together and reproduced through all channels. Select MONO for better reception of weak signals.

19 Sleep Button: Press this button to place the unit in the Sleep mode. Each press of the button selects the amount of time that will remain before the unit automatically goes into the Standby mode, as indicated by the Sleep Timer A, in the following order:



20 Bass Control: Turn this control to modify the low-frequency output of the left/right channels by as much as ±10dB. Set this control to a suitable position for your taste and room acoustics.

21 Treble Control: Turn this control to modify the high-frequency output of the left/right channels by as much as ±10dB. Set this control to a suitable position for your taste and room acoustics.

22 Balance Control: Turn this control to change the relative volume for the front left/right channels.

23 Volume Control: Turn the knob clockwise to increase volume, counterclockwise to decrease the volume.

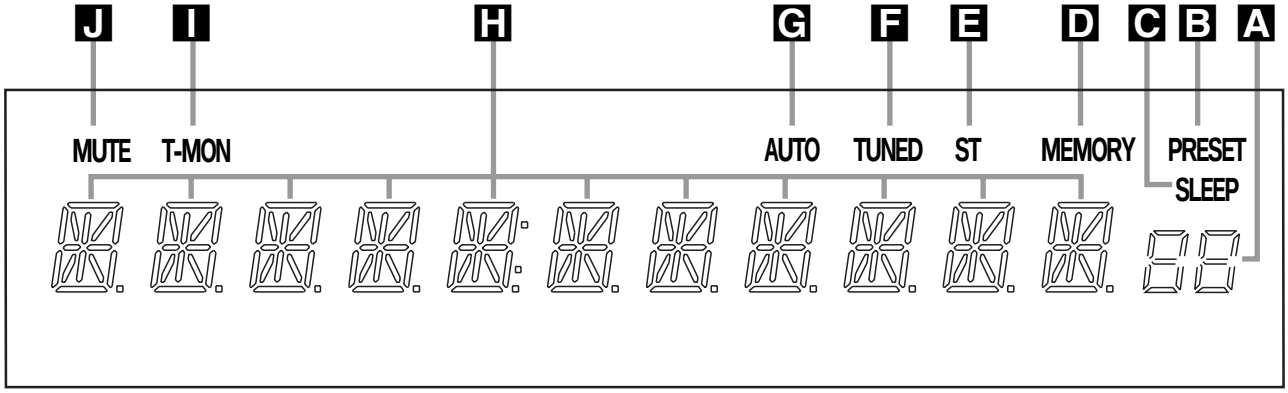
24 Volume/Mute Indicator: This indicator will glow green when the HK 3375 is turned on. Its position will enable you to judge the relative volume of the unit even when the speakers are muted or turned off. When the indicator is pointing toward the left, at an "8 o'clock" position, the volume is low; when it is pointing to the right, as in a "3 o'clock" position, the volume is loud. We recommend that you do not turn the Volume Control past the "12 o'clock" position, at which point the audio signal will begin to distort. Such distortion, although inaudible, is capable of damaging your hearing and your equipment. When the unit has been muted by pressing the Mute Button 5 Ⓡ, the indicator will flash.

25 Information Display: This display delivers messages and status indications to help you operate the receiver.

26 Speaker Selection Indicators: These indicators light as a green LED next to the designation for each speaker pair to show when they are active. Press the Speaker 1 6 or Speaker 2 7 selectors to activate either pair of speakers.

27 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.

FRONT-PANEL INFORMATION DISPLAY



A Preset Number/Sleep Timer
B Preset Indicator
C Sleep Indicator
D Memory Indicator
E Stereo Indicator
F Tuned Indicator
G Auto Indicator
H Main Information Display
I Tape Monitor (T-Mon) Indicator
J Mute Indicator

A Preset Number/Sleep Timer: When the tuner is in use, these numbers indicate the specific preset memory location in use. (See page 15 for more information on preset stations.) When the Sleep function is in use, these numbers show how many minutes remain before the unit goes into the Standby mode.

B Preset Indicator: This indicator lights when the tuner is in use to show that the Preset Number/Sleep Timer **A** is showing the station's preset memory number. (See page 15 for more information on tuner presets.)

C Sleep Indicator: This indicator lights when the Sleep function is in use. The numbers in the Preset Number/Sleep Timer Indicators will show the minutes remaining before the HK 3375 goes into the Standby mode. (See page 14 for more information on the Sleep function.)

D Memory Indicator: This indicator flashes when entering presets and other information into the tuner's memory.

E Stereo Indicator: This indicator lights when an FM station is being tuned in stereo.

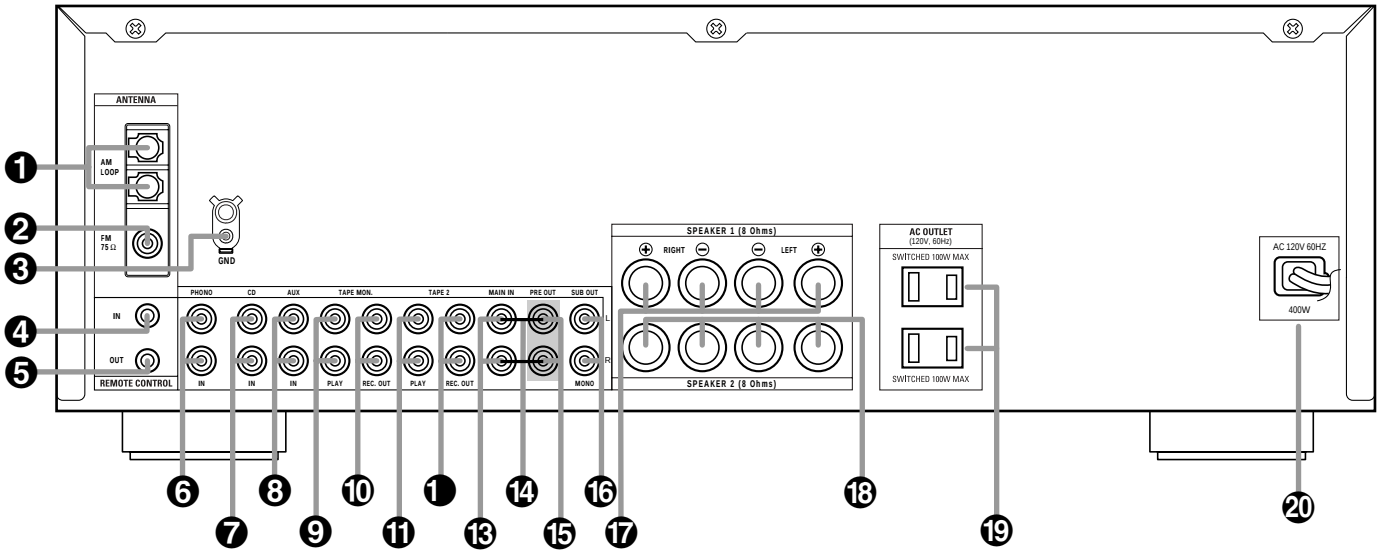
F Tuned Indicator: This indicator lights when a station is being received with sufficient signal strength to provide acceptable listening quality.

G Auto Indicator: This indicator lights when the tuner's Auto mode is in use.

H Main Information Display: This display shows messages relating to the status, input source, tuner or other aspects of the HK 3375's operation.

I Tape Monitor (T-Mon) Indicator: When used with three-head cassette decks, or other recording devices that offer immediate playback of the recording as it is being made, the HK 3375 allows you to monitor a recording rather than merely listening to the input source, or waiting until the recording session is complete in order to hear the recording. Press the Tape Monitor Input Selector **9C**, and the T-Mon Indicator **I** will light to remind you that you are monitoring the recording. Press the Tape Monitor Input Selector **9C** again to hear the input source.

J Mute Indicator: This indicator lights to remind you that the HK 3375's output has been silenced by pressing the Mute button **5R**. Press the Mute button again to return to the previously selected output level.



1. AM Antenna
2. FM Antenna
3. Phono Ground
4. Remote IR In
5. Remote IR Out
6. Phono Inputs
7. CD Inputs
8. Aux Inputs
9. Tape Monitor Play/In
10. Tape Monitor Record/Out
11. Tape 2 Play/In
12. Tape 2 Record/Out
13. Main In
14. Pre-Out/Main-In Jumper Pins
15. Preamp Out
16. Subwoofer Out
17. Speaker 1 Terminals
18. Speaker 2 Terminals
19. Accessory Outlets
20. Power Cable

1 AM Antenna: Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the AM and GND terminals in accordance with the instructions supplied with the antenna.

2 FM Antenna: Connect an indoor or external FM antenna to this terminal.

3 Phono Ground: Connect the ground wire from a turntable to this terminal to reduce system hum.

4 Remote IR In: If the HK 3375's front-panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

5 Remote IR Out: This connection permits the IR sensor in the receiver to serve other remote-controlled devices. Connect this jack to the "IR In" jack on Harman Kardon (or other compatible) equipment.

6 Phono Inputs: Connect the outputs of your turntable or tonearm to these jacks. Only Moving Magnet (MM)-type cartridges may be used.

7 CD Inputs: Connect these jacks to the output of a compact disc player or CD changer.

8 Aux Inputs: Connect these jacks to the line-level output of any audio device such as a TV, cable converter or portable audio player.

9 Tape Monitor Play/In: Connect these jacks to the Play/Out jacks of an audio recorder.

10 Tape Monitor Record/Out: Connect these jacks to the Rec/In jacks of an audio recorder.

NOTE: When these jacks are connected to a three-head recorder or another device with off-head playback, it will be possible to monitor the source being recorded.

11 Tape 2 Play/In: Connect these jacks to the Play/Out jacks of a second audio recorder.

12 Tape 2 Record/Out: Connect these jacks to the Rec/In jacks of a second audio recorder.

13 Main In: These jacks are the input to the HK 3375's power amplifier. Unless an external power amplifier is used, the Jumper Pins **14** should remain connected to the Preamp Out Jacks **15**.

⓮ Pre-Out/Main-In Jumper Pins: These pins connect the receiver's preamp and amplifier sections. Unless an external amplifier, equalizer or speaker processor is used, they should be left connected. See page 13 for more information on external amplifier connections.

⓯ Preamp Out: These jacks provide an output for the left and right channels to an optional external amplifier. In normal operation, unless an external power amplifier is used, the Jumper Pins ⓮ should remain connected to the Main In Jacks ⓭.

⓰ Subwoofer Out: Connect these jacks to the line-level inputs of a powered subwoofer. If an external subwoofer amplifier is used, connect these jacks to the subwoofer amplifier inputs. When a single, mono subwoofer is used, or if the subwoofer or its amplifier has only a single line-level input jack, make the connection to the bottom jack on the HK 3375.

⓱ Speaker 1 Terminals: Connect these terminals to the appropriate terminals on your speakers.

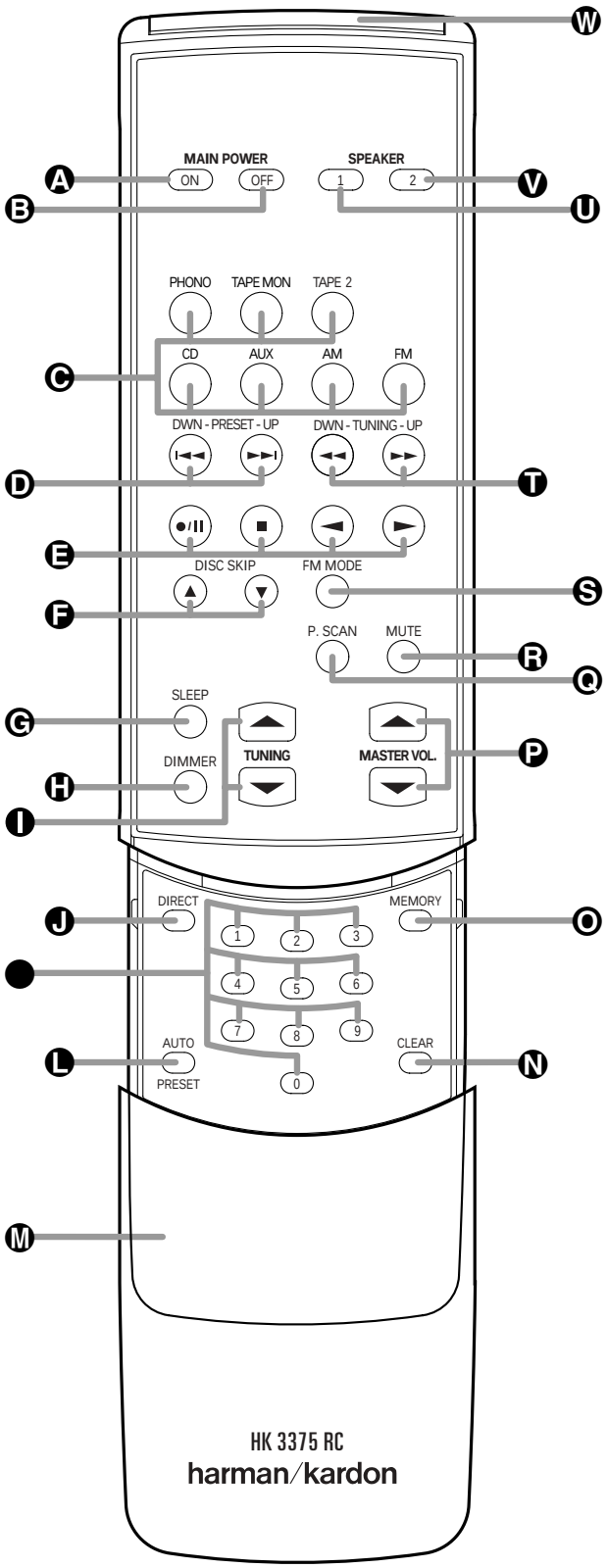
⓲ Speaker 2 Terminals: Connect these terminals to the appropriate terminals on your speakers.

⓳ Accessory Outlets: These outlets may be used to power low-current-draw devices such as CD players or cassette decks. The power to these outlets remains on as long as the receiver itself is on. When the receiver is turned off, or placed in the Standby mode, power to these outlets is removed.

NOTE: The power consumption of the devices plugged into these outlets should not exceed 100 watts.

⓴ Power Cable: Connect the AC plug to a non-switched AC wall output.

- Ⓐ Main Power On
- Ⓑ Main Power Off
- Ⓒ Source Selectors
- Ⓓ Preset Up/Down
- Ⓔ Transport Controls
- Ⓕ Disc Skip
- Ⓖ Sleep Button
- Ⓗ Dimmer Button
- Ⓘ Tuning
- Ⓙ Direct Button
- ● Numeric Keys
- Ⓛ Auto Preset
- Ⓜ Secondary Control Cover
- Ⓝ Clear Button
- Ⓞ Memory Button
- Ⓟ Master Volume
- Ⓠ Preset Scan Button
- Ⓡ Mute Button
- Ⓢ FM Mode Button
- Ⓣ Tuning Up/Down
- Ⓤ Speaker 1 Selector
- Ⓥ Speaker 2 Selector
- Ⓦ Transmitter Window



Ⓐ Main Power On: When the HK 3375 is in the Standby mode, as indicated by the Power Indicator 3 glowing amber, press this button to turn the HK 3375 on.

Ⓑ Main Power Off: When the HK 3375 is turned on, press this button to place it in the Standby mode. In this condition, the unit is still connected to AC Power.

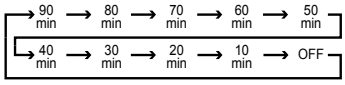
Ⓒ Source Selectors: Press these buttons to select an input source for the HK 3375.

Ⓓ Preset Up/Down: When the tuner is in use, these buttons scroll through the stations that have been programmed into the HK 3375's memory. These buttons also control the track Skip Up/Down on compatible Harman Kardon compact disc players/changers.

Ⓔ Transport Controls: These buttons are used to control Play, Play Forward, Play Reverse, Stop, Pause and Record functions on compatible Harman Kardon compact disc players/changers and cassette tape decks.

Ⓕ Disc Skip: These buttons do not have any functions when controlling the HK 3375, but they operate the Disc Skip functions of compatible Harman Kardon compact disc changers.

Ⓖ Sleep Button: Press this button to place the unit in the Sleep mode. Each press of the button selects the amount of time that will remain before the unit will automatically go into the Standby mode, as shown in the Sleep Timer A, in the following order:



Ⓗ Dimmer Button: Press this button once to reduce the brightness of the Information Display 25 to half the normal intensity. Press it again to turn the front-panel display completely off. When the display is completely off, press the button to return to normal brightness.

Ⓘ Tuning: Press these buttons to tune up or down through a selected frequency band. A brief (1/2-second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception.

Ⓙ Direct Button: Press this button to select a radio station by entering its frequency using the Numeric Keys K. (See page 14 for more information.)

● Numeric Keys: These buttons serve as a 10-button numeric keypad to enter tuner preset positions or to tune stations directly.

Ⓛ Auto Preset: When the tuner and FM band have been selected, this button may be used to automatically program the tuner presets for all active stations. To start the auto preset scan, press and hold the button. Note that the MEMORY D and PRESET B indicators will flash. After a few seconds, the tuner will start to "look" for active stations, as shown by increasing frequency numbers in the Information Display. Release the button and note that the tuner will briefly stop at each active station and add a preset number to the memory. If the FM tuner finds fewer than 30 FM stations with acceptable signal strength, the Auto Preset tuning will scan two more cycles or until the remaining vacant preset memory spaces have been filled with those found in the first scan. The scan will stop when all 30 preset memory spaces have been filled or when three scans through the band have been completed.

Ⓜ Secondary Control Cover: This sliding cover normally is in the "up" position so that it hides the secondary controls. To access these controls, place your thumb on the small recessed area at the top center of the control, and gently press the cover down and toward you.

Ⓝ Clear Button: This button is used to clear preset memory information for the HK 3375's tuner. (See page 15 for more information on tuner presets.)

Ⓞ Memory Button: Press this button to open a memory position that stores a preset location for the HK 3375's tuner. (See page 15 for more information on tuner presets.)

Ⓟ Master Volume: Press these buttons to raise or lower the HK 3375's volume.

Ⓠ Preset Scan Button: Press this button to automatically scan through the list of stations that are programmed into the HK 3375's tuner memory. When the button is pressed, each preset station will play for five seconds before the next station is selected. Press the button again when the desired station is heard, to stop the preset scan.

Ⓡ Mute Button: Press this button to momentarily silence the HK 3375.

Ⓢ FM Mode Button: Press this button when the tuner is in use in the FM band to switch to monaural reception if the station is weak and noisy. (See page 14 for more information.)

Ⓣ Tuning Up/Down: When the tuner is in use, these buttons will tune up or down through the selected frequency band. A brief (1/2-second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception. These buttons will also control Fast Forward and Fast Reverse (or Rewind) for compatible Harman Kardon compact disc players/changers and cassette tape decks.

Ⓤ Speaker 1 Selector: Press this button to turn the speakers connected to the Speaker 1 Output Terminals ⑰ on or off.

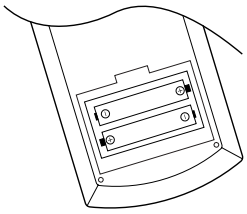
Ⓥ Speaker 2 Selector: Press this button to turn the speakers connected to the Speaker 2 Output Terminals ⑱ on or off.

Ⓦ Transmitter Window: Point this area of the remote toward the receiver when using the remote.

Basic Operation

Once you have completed the setup and configuration of your new receiver, it is simple to operate and enjoy. The following instructions will provide the steps needed to enjoy the HK 3375:

• Install the two supplied AAA batteries in the remote as shown. Be certain to observe the (+) and (–) polarity indicators shown in the bottom of the battery compartment.



• When using the HK 3375 for the first time, it is necessary to press the Main Power Button 1 on the front panel to turn the unit on. This places the unit in a Standby mode, as indicated by the amber color of the Power Indicator 3. Once the unit is in standby, you may begin a listening session by pressing the System Power Control 2 on the front panel or the Main Power On Button A on the remote. The Power Indicator 3 will turn red, then green. This will turn the unit on and return it to the input source that was last used. The unit may also be turned on from Standby by pressing any of the Source Selector buttons on the front panel 8 9 11 13 14 17 or remote C.

To turn the unit off at the end of a listening session, simply press the System Power Control 2 on the front panel or the Main Power Off Button B on the remote. This places the unit in the Standby mode, and the Power Indicator 3 will turn amber to remind you that the unit is ready for operation when a power command is received from the remote.

When the remote is used to turn the unit "off" it is actually placing the system in a Standby mode, as indicated by the amber color of the Power Indicator 3.

When you will be away from home for an extended period of time, it is always a good idea to completely turn the unit off using the front-panel Main Power Switch 1.

• To dim the brightness of the Information Display 25, press the Dimmer Button 16 H. The first press will dim the lights to half normal. A second press will turn the display completely off. Press the Dimmer Button 16 H again to restore the display to normal brightness.

Source Selection

• To select a source at any time, press any of the Source Selector buttons on the remote C or front panel 8 9 11 13 14 17.

• During a listening session you may wish to adjust the Bass 20, Treble 21 and Balance 22 controls to suit your listening tastes.

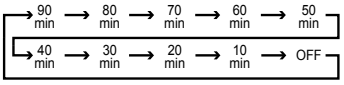
• Adjust the volume to a comfortable level using the front-panel Volume Control 23 or remote Master Volume Up/Down P buttons. The volume level is displayed by the position of the Volume Indicator 24. Think of the Volume Control Knob 23 as the face of a clock, with the Volume Indicator 24 indicating the hour. The HK 3375 is playing at the minimum volume level when the Volume Indicator 24 points to 7 o'clock; when the Volume Indicator 24 points to 12 o'clock (straight up), the HK 3375 is playing at the maximum volume level. It is important that you make sure never to exceed this maximum volume level at any time, in order to avoid possible damage to your loudspeakers due to "clipping", a type of distortion that is not audible to the human ear until it is severe enough to permanently damage most loudspeakers. It is also possible, depending upon the program material, for clipping to occur at volumes below the maximum volume level.

• To temporarily silence all speaker outputs, press the Mute Button R 5. This will cut the output to all speakers, but it will not affect any recording or dubbing that may be in progress. When the system is muted, the MUTE Indicator J will light in the Information Display 25 and the Volume/Mute Indicator 24 will flash. Press the Mute Button R 5 again to return to normal operation.

• For private listening, plug the 1/4" stereo phone plug from a pair of stereo headphones into the front-panel Headphone Jack 4.

• One or two separate sets of speakers may be connected to the HK 3375. To listen to one of the speaker sets, press the Speaker Buttons 6 7 on the front panel corresponding to the desired speakers. The active speakers will be indicated by a lit green LED in the Speaker Indicators 26. Both speakers may be turned off for private headphone listening.

• To program the HK 3375 for automatic turnoff, press the Sleep Button on the front panel 19 or remote G. Each press of the button will increase the time before shutdown, displayed by the Sleep Timer A, in the following sequence:



The sleep time will be displayed in the Information Display 25 and it will count down until the time has elapsed.

When the programmed time has elapsed, the unit will automatically turn off. The Information Display 25 will dim to one-half brightness when the Sleep function is programmed. To cancel the Sleep function, press the Sleep Button 19 until the Sleep Timer A numbers disappear and the Information Display 25 shows the current source. Pressing any control button while the Sleep control is activated will momentarily return the Information Display 25 to full brightness for increased legibility without interrupting the Sleep function.

Tuner Operation

The HK 3375's tuner is capable of tuning AM, FM and FM Stereo broadcast stations. Stations may be tuned manually, or they may be stored as favorite station presets and recalled from a 30-position memory.

Station Selection

1. Press the AM/FM 17 buttons on the front panel or on the remote C to select the tuner as an input.

2. Press these buttons again at any time to switch between AM and FM.

3. To select stations, press the Tuning Button 10 T to advance one frequency increment at a time, or press and hold it, and the tuner will search for the next highest- or lowest-frequency station that has an acceptable signal. To tune to the next station, press and hold the button again. When the TUNED Indicator F lights, the station is properly tuned and should be heard with clarity.

4. Stations may also be tuned directly by pressing the Direct Button J, and then pressing the Numeric Keys K that correspond to the station's frequency. The desired station will automatically be tuned.

NOTE: When the FM reception of a station is weak, audio quality will be increased by switching to Mono mode by pressing the FM Mode Button 18 S until the STEREO Indicator E goes out.

Preset Tuning

Up to 30 stations may be stored in the HK 3375's memory for easy recall using the front-panel controls or the remote.

To enter a station into the memory, first tune the station using the steps outlined above. Then:

1. Press the Memory Button O on the remote. The MEMORY D and PRESET B Indicators will light and flash in the Information Display 25.

2. Within five seconds, press the Numeric Keys K corresponding to the location where you wish to store this station's frequency. The preset number will appear in the Preset Number A display.

3. Repeat the process after tuning any additional stations to be preset.

Auto Preset

• Preset stations may also be programmed automatically for the FM band. To automatically enter each station that may be tuned with acceptable quality into the HK 3375's preset memories, first select the FM band. Next, press and briefly hold the Auto Preset Button L until the MEMORY D and PRESET B Indicators begin to flash, and the station frequency indication begins to increase. Release the button and the tuner will search the entire FM band, and stop briefly at each station that has acceptable signal strength. The HK 3375 will automatically assign a preset number to each station, and then search for the next station. The automatic scan process will stop when all 30 preset memory locations have been filled or the entire FM band has been scanned three times.

NOTE: Using the automatic tuning mode in areas with more than 30 FM stations will completely fill the preset memories, and overwrite any previously memorized presets for either AM or FM stations.

TIP: The automatic scan process may enter stations that you do not wish to retain in the memory, or it may enter a station on more than one frequency if the signal is too strong. These unwanted stations may be removed from the memory using the Preset Clear function outlined below.

Recalling Preset Stations

• To manually select a station previously entered in the preset memory, press the Numeric Keys K that correspond to the desired station's preset memory location.

• To manually tune through the list of stored preset stations one by one, press the Preset ◄/► Buttons 15 D on the front panel or remote.

• To automatically scan through the stations entered in the preset memory, press the Preset Scan Button 12 Q on the front panel or remote. The tuner will run through the list of preset stations in the Preset Number A display, stopping for five seconds at each one. Press the button again to stop the scan at your desired station.

Clearing Preset Stations

Unwanted preset stations may be erased from the unit's memory to make it easier to tune only those stations you want.

To remove a preset station from the HK 3375's tuner memory, first tune to the station using the Preset Scan Button 12 Q on the front panel or remote, or by entering the preset number directly, using the Numeric Keys K.

When the preset station to be removed has been tuned, first press the Memory Button O. The MEMORY D and PRESET B Indicators in the Information Display 25 will flash, and the actual preset number will disappear from the Preset Number A display. Next, press the Clear Button N within five seconds.

The preset station will be removed from the memory, and the action will be confirmed by the brief appearance of the word CLEAR and the preset number location in the Information Display. That memory location will now be empty, and you may program a different station to that location, or leave it empty.

Tape Recording

In normal operation, the audio source selected for listening through the HK 3375 is sent to the Tape Mon Out and Tape 2 Rec Out outputs. This means that any program you are listening to may be recorded simply by placing machines connected to the outputs for Tape Monitor 10 or Tape 2 1 in the record mode.

When a tape recorder with separate record and playback heads is used, you may monitor the output of the recording by selecting the T-Mon Input 9 C. The T-Mon Indicator I will light in the Information Display 25 to remind you that you are listening to the record playback instead of the actual input source being recorded. Press it again to hear the input source.

IMPORTANT NOTE: Please make certain that you are aware of the copyright restrictions on any material you copy.

Memory Backup

This product is equipped with a memory backup system that preserves tuner presets and system configuration information if the unit is accidentally unplugged or subjected to a power outage. The unit's memory is stored in an EEPROM, and thus the HK 3375 will retain information such as programmed presets without being connected to a main power source virtually indefinitely.

Processor Reset

In the rare case where the unit's operation or the displays seem abnormal, the cause may involve the erratic operation of the system's memory or microprocessor.

To correct this problem, first unplug the unit from the AC wall outlet and wait at least three minutes. After the pause, reconnect the AC power cord and check the unit's operation. If the system still malfunctions, a system reset may clear the problem.

If the system still does not respond, it may be necessary to perform a complete reset. To reset the system, first turn the HK 3375 off by pressing the Main Power Switch 1 and then releasing it so that it extends out beyond the front panel and the word "OFF" is visible in red lettering at the top of the switch.

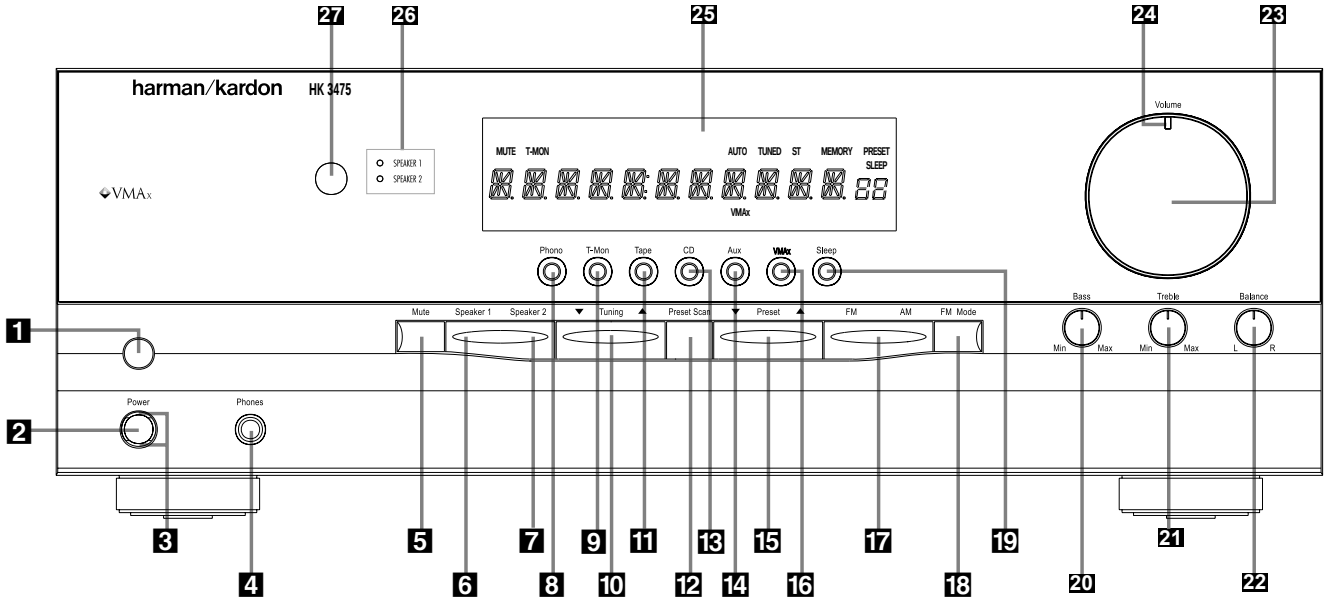
Next, press and hold the T-Mon and CD Input Selector Buttons 9 13 on the front panel ONLY. While holding these buttons in, press the Main Power Switch 1 in until it latches so that the button is flush with the front panel.

The Information Display will briefly show the word RESET, and then return to normal operation.

When the system is reset in this fashion, all tuner presets will be lost and must be reentered.

If the system is still operating incorrectly, there may have been an electronic discharge or severe AC line interference that has corrupted the memory or microprocessor.

If these steps do not solve the problem, consult an authorized Harman Kardon service center.


harman/kardon
HK 3475
VMAx
SPEAKER 1
SPEAKER 2
MUTE T-MON
AUTO TUNED ST MEMORY PRESET
SLEEP
VMAx
Volume
Phono T-Mon Tape CD Aux VMAx Sleep
Mute Speaker 1 Speaker 2 Tuning Preset Scan Preset FM AM FM Mode
Bass Treble Balance
Min Max Min Max L R
Power
Phones
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

1 Main Power Switch
2 System Power Control
3 Power Indicator
4 Headphone Jack
5 Mute
6 Speaker 1 Selector
7 Speaker 2 Selector
8 Phono Input Selector
9 T-Mon (Tape Monitor) Input Selector
10 Tuning Button
11 Tape Input Selector
12 Preset Scan
13 CD Input Selector
14 Aux Input Selector
15 Preset Selector
16 VMAx Selector
17 FM/AM Selector
18 FM Mode Selector
19 Sleep Button
20 Bass Control
21 Treble Control
22 Balance Control
23 Volume Control
24 Volume/Mute Indicator
25 Main Information Display
26 Speaker Selection Indicators
27 Remote Sensor Window

1 Main Power Switch: Press this button to apply power to the HK 3475. When the switch is pressed in, the unit is placed in a Standby mode, as indicated by the Power Indicator **3** surrounding the System Power Control **2**. This button MUST be pressed in to operate the unit. To turn the unit off and prevent the use of the remote control, this switch should be pressed until it pops out from the front panel so that the word "OFF" may be read at the top of the switch.

NOTE: In normal operation this switch is left in the "ON" position.

2 System Power Control: When the Main Power Switch **1** is "ON," press this button to turn on the HK 3475; press it again to turn the unit off. The Power Indicator **3** surrounding the switch will initially turn red as the HK 3475 performs a self-check, and it will change to green when the unit is on and ready for use.

3 Power Indicator: This LED will light in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is turned on, the indicator will briefly turn red, and then change to green. A red indicator during normal operation means that the unit is in the Protect mode, and should be turned off and then checked for a possible speaker-wire short circuit.

4 Headphone Jack: This jack may be used to listen to the HK 3475's output through a pair of headphones. Be certain that the headphones have a standard 1⁄4" stereo phone plug.

5 Mute: Press this button to momentarily silence the speaker output of the HK 3475.

6 Speaker 1 Button: Press this button to turn the speakers connected to the Speaker 1 Output Terminals ⓱ on or off.

7 Speaker 2 Button: Press this button to turn the speakers connected to the Speaker 2 Output Terminals ⓲ on or off.

8 Phono Input Selector: Press this button to select the output of a turntable that is connected to the Phono Inputs ❻.

9 T-Mon (Tape Monitor) Input Selector: Press this button to listen to the output of a tape recorder connected to the Tape Monitor Inputs ❾. The T-Mon indicator will light to indicate that the input source is being monitored when the HK 3475 is connected to a three-head tape deck or another unit with off-head playback.

10 Tuning Button: Press the left side of the button to tune lower-frequency stations and the right side of the button to tune higher-frequency stations. When a station with a strong signal is tuned, the Tuned Indicator **G** will light in the Main Information Display **25**. A brief (1/2 second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception.

11 Tape Input Selector: Press this button to listen to the output of a tape recorder or other device connected to the Tape 2 Inputs ⓫.

12 Preset Scan: Press this button to automatically scan through the stations that have been programmed in the HK 3475's memory. The tuner will play five seconds of each station before moving to the next preset station. To stop the scan when the desired station is heard, press the button again. If no preset stations have been programmed into the HK 3475's memory, the message 0 PRESET will flash in the Main Information Display **25** when this button is pressed. (See page 15 for more information on the tuner memory system.)

13 CD Input Selector: Press this button to listen to the output of a CD player connected to the CD Inputs ❼.

14 Aux Input Selector: Press this button to listen to the output of a device connected to the Aux Inputs ❽.

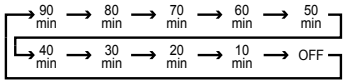
15 Preset Selector: Press this button to step up or down through the list of stations that has been entered into the preset memory. If no preset stations have been programmed into the HK 3475's memory, the message 0 PRESET will flash in the Main Information Display **25** when this button is pressed. (See page 15 for more information on tuner programming.)

16 VMAx Selector: Press this button to engage VMAx processing of a stereo input. The VMAx Mode Indicator **A** will light, and you will notice a wider, more spacious sound field. In order to obtain maximum benefit, you should be seated midway between the two loudspeakers, and the same distance from the speakers as the speakers are from each other. The speakers must be placed facing parallel and evenly with each other so that their baffles are in the same plane. Press the button again to return to Stereo mode.

17 FM/AM Selector: Press this button to select the tuner as the input to the receiver. When the tuner is in use, press this button to change between the AM and FM frequency bands.

18 FM Mode Selector: Press this button to select the Stereo or Mono mode for FM tuning. In the STEREO mode, a Stereo indicator will light in the Main Information Display **25**, and stereo reception will be provided when stations are transmitting stereo signals. In the MONO mode, the left and right signals from stereo broadcasts will be mixed together and reproduced through all channels. Select MONO for better reception of weak signals. VMAx will have no effect in MONO mode.

19 Sleep Button: Press this button to place the unit in the Sleep mode. Each press of the button selects the amount of time that will remain before the unit automatically goes into the Standby mode, as shown in the Main Information Display **25**, in the following order:



20 Bass Control: Turn this control to modify the low-frequency output of the left and right channels by as much as ±10dB. Set this control to a suitable position for your taste and room acoustics.

21 Treble Control: Turn this control to modify the high-frequency output of the left and right channels by as much as ±10dB. Set this control to a suitable position for your taste and room acoustics.

22 Balance Control: Turn this control to change the relative volume for the left and right channels.

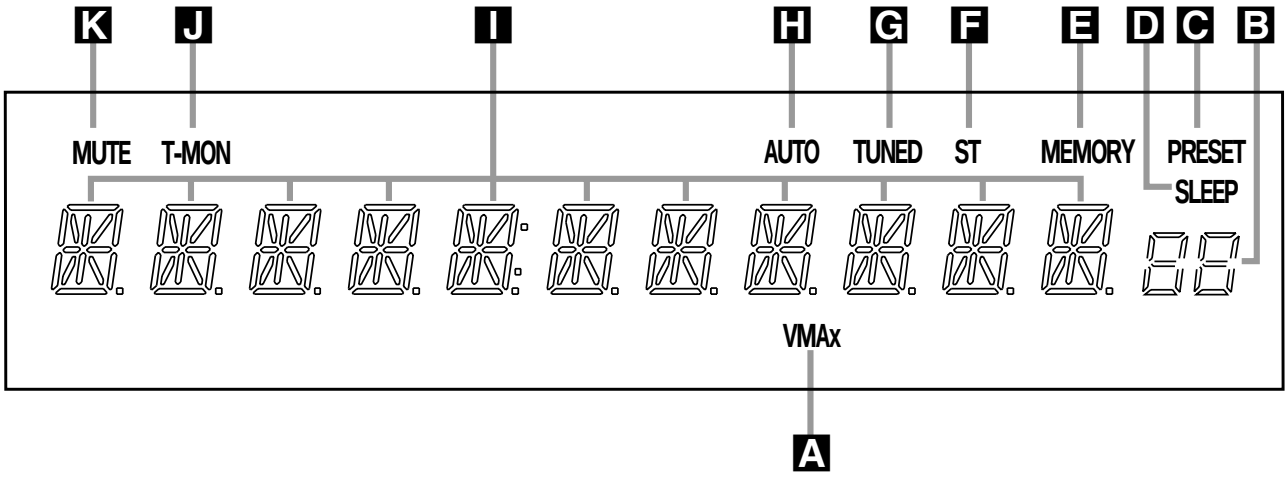
23 Volume Control: Turn the knob clockwise to increase volume, counterclockwise to decrease the volume.

24 Volume/Mute Indicator: This indicator will glow green when the HK 3475 is turned on. Its position will enable you to judge the relative volume of the unit even when the speakers are muted or turned off. When the indicator is pointing toward the left, as in an "8 o'clock" position, the volume is low; when it is pointing to the right, as in a "3 o'clock" position, the volume is loud. We recommend that you do not furn the Volume Control past the "12 o'clock" position, at which point the audio signal will begin to distort. Such distortion, although inaudible, is capable of damaging your hearing and your equipment. When the unit has been muted by pressing the Mute Button **5**, the indicator will flash.

25 Main Information Display: This display delivers messages and status indications to help you operate the receiver.

26 Speaker Selection Indicators: These indicators light as a green LED next to the designation for each speaker pair to show when they are active. Press the Speaker 1 **6** or Speaker 2 **7** selectors to activate either pair of speakers. Both sets of speakers may be selected simultaneously as long as all speakers have a nominal impedance of 8 ohms or greater. However, occasionally the actual impedance will vary, depending upon the program material. If the impedance drops to a point where there may be potential damage to the equipment, the HK 3475 will go into protect mode.

27 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.



A VMAx Mode Indicator
B Preset Number/Sleep Timer
C Preset Indicator
D Sleep Indicator
E Memory Indicator
F Stereo Indicator
G Tuned Indicator
H Auto Indicator
I Main Information Display
J Tape Monitor (T-Mon) Indicator
K Mute Indicator

A VMAx Mode Indicator: This indicator lights when the VMAx mode is in use. (See page 14 for a description of the VMAx Mode.)

B Preset Number/Sleep Timer: When the tuner is in use, these numbers indicate the specific preset memory location in use. (See page 15 for more information on preset stations.) When the Sleep function is in use, these numbers show how many minutes remain before the unit goes into the Standby mode.

C Preset Indicator: This indicator lights when the tuner is in use to show that the Preset Number/Sleep Timer **B** is showing the station's preset memory number. (See page 15 for more information on tuner presets.)

D Sleep Indicator: This indicator lights when the Sleep function is in use. The numbers in the Preset Number/Sleep Timer Indicators will show the minutes remaining before the HK 3475 goes into the Standby mode. (See page 14 for more information on the Sleep function.)

E Memory Indicator: This indicator flashes when entering presets and other information into the tuner's memory.

F Stereo Indicator: This indicator lights when an FM station is being tuned in stereo.

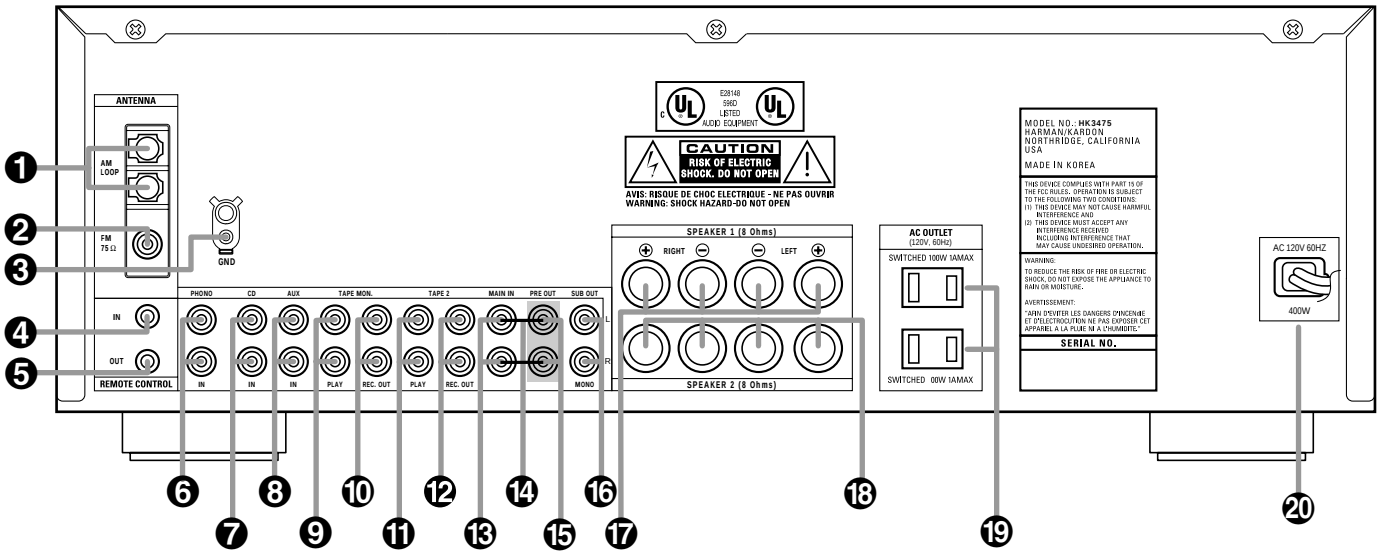
G Tuned Indicator: This indicator lights when a station is being received with sufficient signal strength to provide acceptable listening quality.

H Auto Indicator: This indicator lights when the tuner's Auto mode is in use.

I Main Information Display: This display shows messages relating to the status, input source, tuner or other aspects of the HK 3475's operation.

J Tape Monitor (T-Mon) Indicator: When used with three-head cassette decks, or other recording devices that offer immediate playback of the recording as it is being made, the HK 3475 allows you to monitor a recording rather than merely listening to the input source, or waiting until the recording session is complete in order to hear the recording. Press the Tape Monitor Input Selector **9C**, and the T-Mon Indicator **J** will light to remind you that you are monitoring the recording. Press the Tape Monitor Input Selector **9C** again to hear the input source.

K Mute Indicator: This indicator lights to remind you that the HK 3475's output has been silenced by pressing the Mute Button **5R**. Press the Mute button again to return to the previously selected output level.



❶ AM Antenna
❷ FM Antenna
❸ Phono Ground
❹ Remote IR In
❺ Remote IR Out
❻ Phono Inputs
❼ CD Inputs
❽ Aux Inputs
❾ Tape Monitor Play/In
❿ Tape Monitor Record/Out
⓫ Tape 2 Play/In
⓬ Tape 2 Record/Out
⓭ Main In
⓮ Pre-Out/Main-In Jumper Pins
⓯ Preamp Out
⓰ Subwoofer Out
⓱ Speaker 1 Terminals
⓲ Speaker 2 Terminals
⓳ Accessory Outlets
⓴ Power Cable

❶ AM Antenna: Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the AM and GND terminals in accordance with the instructions supplied with the antenna.

❷ FM Antenna: Connect an indoor or external FM antenna to this terminal.

❸ Phono Ground: Connect the ground wire from a turntable to this terminal to reduce system hum.

❹ Remote IR In: If the HK 3475's front panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

❺ Remote IR Out: This connection permits the IR sensor in the receiver to serve other remote-controlled devices. Connect this jack to the "IR IN" jack on Harman Kardon or other compatible equipment.

❻ Phono Inputs: Connect the outputs of your turntable or tonearm to these jacks. Only turntables with Moving Magnet (MM) type cartridges may be used.

❼ CD Inputs: Connect these jacks to the output of a compact disc player or CD changer.

❽ Aux Inputs: Connect these jacks to the line-level output of any audio device such as a TV, cable converter, portable audio player or MP3 player.

❾ Tape Monitor Play/In: Connect these jacks to the Play/Out jacks of an audio recorder.

❿ Tape Monitor Record/Out: Connect these jacks to the Rec/In jacks of an audio recorder.

NOTE: When these jacks are connected to a three-head recorder or another device with off-head playback, it will be possible to monitor the source being recorded.

⓫ Tape 2 Play/In: Connect these jacks to the PLAY/OUT jacks of a second audio recorder.

⓬ Tape 2 Record/Out: Connect these jacks to the Rec/In jacks of a second audio recorder.

⓭ Main In: These jacks are the input to the HK 3475's power amplifier. Unless an external power amplifier is used, the Jumper Pins ⓮ should remain connected to the Preamp Out Jacks ⓯.

⓮ Pre-Out/Main-In Jumper Pins: These pins connect the receiver's preamp and amplifier sections. Unless an external amplifier, equalizer or speaker processor is used, they should be left connected. See page 13 for more information on external amplifier connections.

⓯ Preamp Out: These jacks provide an output for the left and right channels to an optional external amplifier. In normal operation, unless an external power amplifier is used, the Jumper Pins ⓮ should remain connected to the Main In Jacks ⓭.

⑯ Subwoofer Out: Connect these jacks to the line-level inputs of a powered subwoofer. If an external subwoofer amplifier is used, connect these jacks to the subwoofer amplifier inputs. When a single, mono subwoofer is used, or if the subwoofer or its amplifier has only a single line-level input jack, make the connection to the bottom jack on the HK 3475.

⑰ Speaker 1 Terminals: Connect these terminals to the appropriate terminals on your speakers.

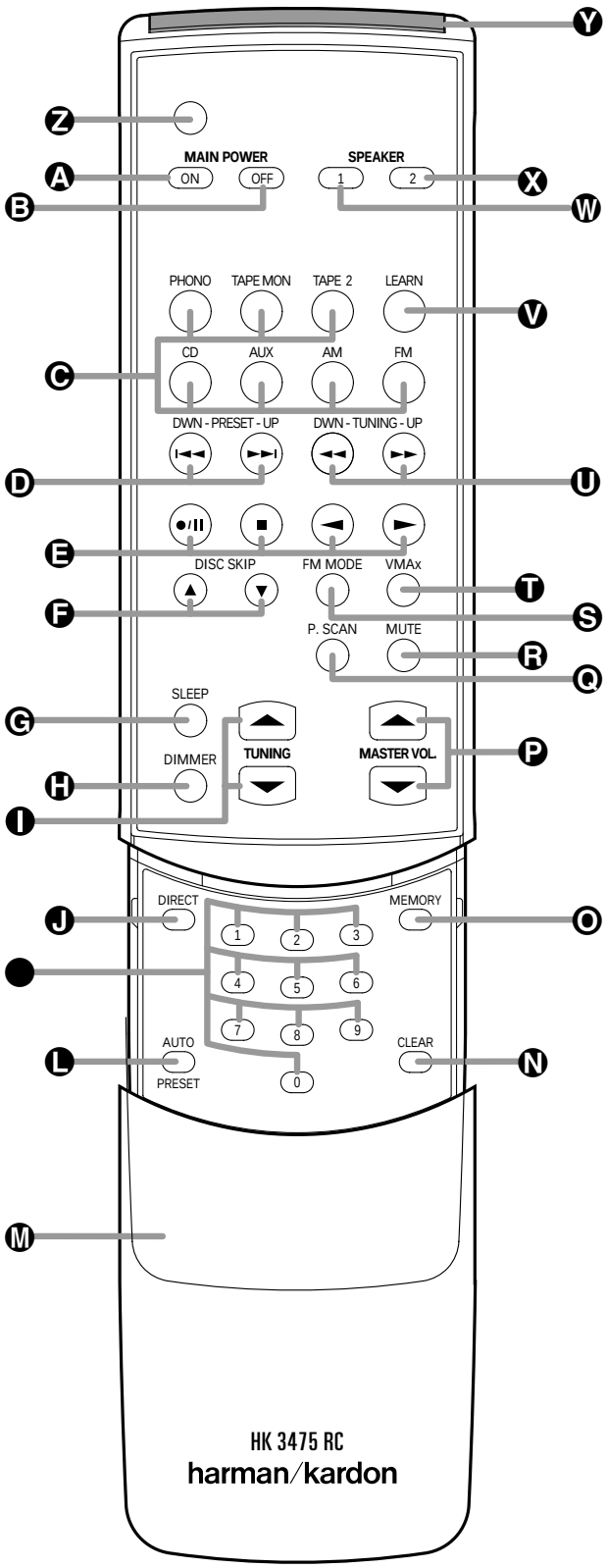
⑱ Speaker 2 Terminals: Connect these terminals to the appropriate terminals on your speakers.

⑲ Accessory Outlets: These outlets may be used to power low-current draw devices such as CD players or cassette decks. The power to these outlets remains on as long as the receiver itself is on. When the receiver is turned off, or placed in the Standby mode, power to these outlets is removed.

NOTE: The power consumption of the devices plugged into these outlets should not exceed 100 watts.

⑳ Power Cable: Connect the AC plug to a non-switched AC wall output.

Ⓐ Main Power On
Ⓑ Main Power Off
Ⓒ Source Selectors
Ⓓ Preset Up/Down
Ⓔ Transport Controls
Ⓕ Disc Skip
Ⓖ Sleep Button
Ⓗ Dimmer Button
Ⓘ Tuning
Ⓙ Direct Button
● Numeric Keys
Ⓛ Auto Preset
Ⓜ Secondary Control Cover
Ⓝ Clear Button
Ⓞ Memory Button
Ⓟ Master Volume
Ⓠ Preset Scan Button
Ⓡ Mute Button
Ⓢ FM Mode Button
Ⓣ VMAx Selector
Ⓤ Tuning Up/Down
Ⓥ Learn Button
Ⓦ Speaker 1 Selector
Ⓧ Speaker 2 Selector
Ⓨ Transmitter Window
Ⓩ LED Indicator



Ⓐ Main Power On: When the HK 3475 is in the Standby mode, as indicated by the Power Indicator 3 glowing amber, press this button to turn the HK 3475 on.

Ⓑ Main Power Off: When the HK 3475 is turned on, press this button to place it in the Standby mode. In this mode, the unit is still connected to AC Power.

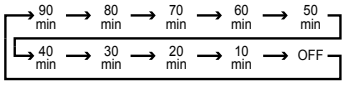
Ⓒ Source Selectors: Press these buttons to select an input source for the HK 3475.

Ⓓ Preset Up/Down: When the tuner is in use, these buttons scroll through the stations that have been programmed into the HK 3475's memory. These buttons also control the track Skip Up and Down on compatible Harman Kardon compact disc players and changers.

Ⓔ Transport Controls: These buttons are used to control Play, Play Forward, Play Reverse, Stop, Pause and Record functions on compatible Harman Kardon compact disc players/changers and cassette tape decks. Also, when a compatible Harman Kardon compact disc player or changer, or cassette deck, has been selected using the Source Selectors Ⓒ, additional transport control functions are available using the Preset Up/Down Ⓓ and Tuning Up/Down Ⓤ buttons.

Ⓕ Disc Skip: These buttons do not have any functions when controlling the HK 3475, but they operate the Disc Skip functions of compatible Harman Kardon compact disc changers.

Ⓖ Sleep Button: Press this button to place the unit in the Sleep mode. Each press of the button selects the amount of time that will remain before the unit will automatically go into the Standby mode, as shown in the Main Information Display 25, in the following order:



Ⓗ Dimmer Button: Press this button once to reduce the brightness of the Main Information Display 25 to half the normal intensity. Press it again to turn the front-panel display completely off. When the display is completely off, press the button to return to normal brightness.

Ⓘ Tuning: Press these buttons to tune up or down through a selected frequency band. A brief (1/2 second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception.

Ⓙ Direct Button: Press this button to select a radio station by entering its frequency using the Numeric Keys K. (See page 15 for more information.)

● Numeric Keys: These buttons serve as a ten-button numeric keypad to enter tuner preset positions or to tune stations directly.

Ⓛ Auto Preset: When the tuner and FM band have been selected, this button may be used to automatically program the tuner presets for all active stations. To start the auto preset scan, press and hold the button. The Memory Indicator E and Preset Indicator C will flash. After a few seconds, the tuner will start to "look" for active stations, as shown by increasing frequency numbers in the Main Information Display. Release the button and the tuner will briefly stop at each active station and add a preset number to the memory. If the FM tuner finds fewer than 30 FM stations with acceptable signal strength, the Auto Preset tuning will scan two more cycles or until the remaining vacant preset memory spaces have been filled with those found in the first scan. The scan will stop when all 30 preset memory spaces have been filled or when three scans through the band have been completed.

Ⓜ Secondary Control Cover: This sliding cover normally is in the "up" position so that it hides the secondary controls (the Direct button, Numeric Keys, Auto Preset button, Clear button and Memory button) Ⓙ●ⓁⓃⓄ. To access these controls, place your thumb on the small recessed area at the top center of the control, and gently press the cover down and toward you.

Ⓝ Clear Button: This button is used to clear preset memory information for the HK 3475's tuner. (See page 15 for more information on tuner presets.)

Ⓞ Memory Button: Press this button to open a memory position that stores a preset location for the HK 3475's tuner. (See page 15 for more information on tuner presets.)

Ⓟ Master Volume: Press these buttons to raise or lower the HK 3475's volume.

Ⓠ Preset Scan Button: Press this button to automatically scan through the list of stations that are programmed into the HK 3475's tuner memory. When the button is pressed, each preset station will play for five seconds before the next station is selected. Press the button again when the desired station is heard to stop the preset scan.

Ⓡ Mute Button: Press this button to momentarily silence the HK 3475.

Ⓢ FM Mode Button: Press this button when the tuner is in use in the FM band to switch to monaural reception if the station is weak and noisy. (See page 15 for more information.)

Ⓣ VMAx Selector: Press this button to engage VMAx processing of a stereo input. The VMAx Mode Indicator A will light, and you will notice a wider, more spacious sound field. In order to obtain maximum benefit, you should be seated midway between the two loudspeakers, and the same distance from the speakers as the speakers are from each other. The speakers must be placed facing parallel and evenly with each other so that their baffles are in the same plane. Press the button again to return to Stereo mode.

Ⓤ Tuning Up/Down: When the tuner is in use, these buttons will tune up or down through the selected frequency band. A brief (1/2 second) press of the button will manually tune to the next frequency increment, while pressing and holding the button for a longer period will automatically tune to the next station with a signal strong enough for acceptable reception. These buttons will also control Fast Forward and Fast Reverse (or Rewind) for compatible Harman Kardon compact disc players/changers and cassette tape decks.

Ⓥ Learn Button: This button is used when you wish to program codes from another device's remote control into the HK 3475 remote. The procedure is described on page 17.

Ⓦ Speaker 1 Selector: Press this button to turn the speakers connected to the Speaker 1 Output Terminals ⑰ on or off.

Ⓧ Speaker 2 Selector: Press this button to turn the speakers connected to the Speaker 2 Output Terminals ⑱ on or off.

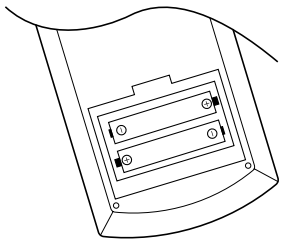
Ⓨ Transmitter Window: Point this area of the remote toward the receiver when using the remote.

Ⓩ LED Indicator: This indicator will light or blink to confirm various steps in the learning process as the HK 3475 remote is programmed. It will also flicker when a key is pressed during normal operation to indicate that it is transmitting an infrared code.

Basic Operation

The HK 3475 is simple to operate, and very similar to stereo receivers you may have used in the past. This section will explain the use of several features that may be new to you.

• Install the two supplied AAA batteries in the remote as shown. Be certain to observe the (+) and (–) polarity indicators shown in the bottom of the battery compartment.



• When using the HK 3475 for the first time, it will be necessary to press the Main Power Button 1 on the front panel to turn the unit on. This places the unit in a standby mode, as indicated by the amber color of the Power Indicator 3. Once the unit is in standby, you may begin a listening session by pressing the System Power Control 2 on the front panel or the Main Power On Button A on the remote. The Power Indicator 3 will turn red, then green. This will turn the unit on and return it to the input source that was last used. The unit may also be turned on from standby by pressing any of the Source Selector buttons on the front panel 8 9 11 13 14 17 or remote C.

To turn the unit off at the end of a listening session simply press the System Power Control 2 on the front panel or the Main Power Off Button B on the remote. This places the unit in the Standby mode, and the Power Indicator 3 will turn amber to remind you that the unit is ready for operation when a power command is received from the remote.

When the remote is used to turn the unit "off," it is actually placing the system in a standby mode, as indicated by the amber color of the Power Indicator 3.

When you will be away from home for an extended period of time it is always a good idea to completely turn the unit off using the front panel Main Power Switch 1.

• To dim the brightness of the Main Information Display 25, press the Dimmer Button H on the remote. The first press will dim the lights to half normal. A second press will turn the display completely off. Press the Dimmer Button H again to restore the display to normal brightness.

Source Selection

• To select a source at any time, press any of the Source Selector buttons on the remote C or front panel 8 9 11 13 14 17.

• During a listening session you may wish to adjust the Bass 20, Treble 21 and Balance 22 controls to suit your listening tastes.

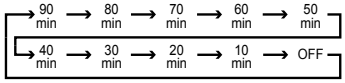
• Adjust the volume to a comfortable level using the front panel Volume Control 23 or remote Master Volume Up/Down Buttons P. The volume level is displayed by the position of the Volume Indicator 24. Think of the Volume Control 23 knob as the face of a clock, with the Volume Indicator 24 indicating the hour. The HK 3475 is playing at the minimum volume level when the Volume Indicator 24 points to 7 o'clock; when the Volume Indicator 24 points to 12 o'clock (straight up), the HK 3475 is playing at the maximum volume level. It is important that you make sure never to exceed this maximum volume level at any time, in order to avoid possible damage to your loudspeakers due to "clipping," a type of distortion that is not audible to the human ear until it is severe enough to permanently damage most loudspeakers. It is also possible, depending upon the program material, for clipping to occur at volumes below the maximum volume level.

• To temporarily silence all speaker outputs, press the Mute Button R 5. This will cut the output to all speakers, but it will not affect any recording or dubbing that may be in progress. When the system is muted, the Mute Indicator K will light in the Main Information Display 25 and the Volume/Mute Indicator 24 will flash. Press the Mute Button R 5 again to return to normal operation.

• For private listening, plug the 1/4" stereo phone plug from a pair of stereo headphones into the front-panel Headphone Jack 4.

• One or two separate sets of speakers may be connected to the HK 3475. To listen to one of the speaker sets, press the Speaker Buttons 6 7 on the front panel corresponding to the desired speakers. The active speakers will be indicated by a lit green LED in the Speaker Indicators 26 display. Both sets of speakers may be turned off for private headphone listening.

• To program the HK 3475 for automatic turn-off, press the Sleep Button 19 on the front panel or remote G. Each press of the button will increase the time before shutdown in the following sequence:



The sleep time will be displayed in the Sleep Timer B in the Main Information Display 25 and it will count down until the time has elapsed.

When the programmed time has elapsed, the unit will automatically turn off. The Main Information Display 25 will dim to one-half brightness when the Sleep function is programmed. To cancel the Sleep function, press the Sleep Button 19 G until the Sleep indicator numbers disappear and the Main Information Display 25 shows the current source. Pressing any control button while the Sleep control is activated will momentarily return the Main Information Display 25 to full brightness for increased legibility without interrupting the Sleep function.

To take advantage of Harman Kardon's exclusive VMAx mode, Press the VMAx Button 16 T. When the VMAx circuits are engaged, patented processing algorithms are used to create a three-dimensional sound space with the illusion of "phantom" speakers at the center and surround positions. This spacious sound will simulate a surround-sound presentation without the need to add additional speakers. To return to standard stereo listening, press the VMAx Button 16 T again and the VMAx Mode Indicator A will go out.

Tuner Operation

The HK 3475's tuner is capable of tuning AM, FM and FM Stereo broadcast stations. Stations may be tuned manually, or they may be stored as favorite station presets and recalled from a 30-position memory.

Station Selection

1. Press the AM/FM 17 buttons on the front panel or on the remote C to select the tuner as an input.

2. Press these buttons again at any time to switch between AM and FM.

3. To select stations, press the Tuning Button 10 U to advance one frequency increment at a time, or press and hold it, and the tuner will search for the next highest- or lowest-frequency station that has an acceptable signal. To tune to the next station, press and hold the button again. When the Tuned Indicator G lights, the station is properly tuned and should be heard with clarity.

4. Stations may also be tuned directly by pressing the Direct Button J, and then pressing the Numeric Keys ● that correspond to the station's frequency. The desired station will automatically be tuned.

NOTE: When the FM reception of a station is weak, audio quality will be increased by switching to Mono mode by pressing the FM Mode Button 18 S until the Stereo Indicator F goes out.

Preset Tuning

Up to 30 stations may be stored in the HK 3475's memory for easy recall using the front panel controls or the remote. In order to program preset stations into memory, you must use the remote control.

To enter a station into the memory, first tune the station using the steps outlined above. Then:

1. Press the Memory Button O on the remote. The Memory Indicator E and Preset Indicator C will light and flash in the Main Information Display 25.

2. Within five seconds, press the Numeric Keys ● corresponding to the location where you wish to store this station's frequency. The preset number will appear in the Preset Number B display.

3. Repeat the process after tuning any additional stations to be preset.

Auto Preset

• Preset stations may also be programmed automatically for the entire FM band. To automatically enter each station that may be tuned with acceptable quality into the HK 3475's preset memories, first select the FM band. Next, press and briefly hold the Auto Preset Button L until the Memory Indicator E and Preset Indicator C begin to flash, and the station frequency indication begins to increase. Release the button and the tuner will search the entire FM band, and stop briefly at each station that has acceptable signal strength. The HK 3475 will automatically assign a preset number to each station, and then search for the next station. The automatic scan process will stop when all 30 preset memory locations have been filled or the entire FM band has been scanned three times.

NOTE: Using the automatic tuning mode in areas with more than 30 FM stations will completely fill the preset memories, and overwrite any previously memorized presets for either AM or FM stations.

TIP: The automatic scan process may enter stations that you do not wish to retain in the memory, or it may enter a station on more than one frequency if the signal is too strong. These unwanted stations may be removed from the memory using the Preset Clear function outlined below.

Recalling Preset Stations

• To manually select a station previously entered in the preset memory, press the Numeric Keys ● that correspond to the desired station's preset memory location.

• To manually tune through the list of stored preset stations one by one, press the ▲/▼ Preset Buttons 15 D on the front panel or remote.

• To automatically scan through the stations entered in the preset memory, press the Preset Scan Button 12 Q on the front panel or remote. The tuner will cycle through the list of preset stations in the Preset Number Display B, stopping for five seconds at each one. Press the button again to stop the scan at your desired station.

Clearing Preset Stations

Unwanted preset stations may be erased from the unit's memory to make it easier to tune only those stations you want.

To remove a preset station from the HK 3475's tuner memory, first tune to the station using the Preset Scan Button 12 Q on the front panel or remote, or by entering the preset number directly, using the Numeric Keys ●.

When the preset station to be removed has been tuned, first press the Memory Button O. The Memory Indicator E and Preset Indicator C in the Main Information Display 25 will flash, and the actual preset number will disappear from the Preset Number B display. Next, press the Clear Button N within five seconds.

The preset station will be removed from the memory, and the action will be confirmed by the brief appearance of the word CLEAR and the preset number location in the Main Information Display. That memory location will now be empty, and you may program a different station to that location, or leave it empty.

Tape Recording

In normal operation, the audio source selected for listening through the HK 3475 is sent to the Tape Mon Out 10 and Tape 2 Rec Out 1 outputs. This means that any program you are listening to may be recorded simply by placing machines connected to the outputs for Tape Monitor 10 or Tape 2 1 in the record mode.

When a tape recorder with separate record and playback heads is used, you may monitor the output of the recording by pressing the Tape Monitor Input Selector 9 C. The T-Mon Indicator J will light in the Main Information Display 25 to remind you that you are listening to the record playback instead of the actual input source being recorded. Press it again to hear the input source.

IMPORTANT NOTE: Please make certain that you are aware of the copyright restrictions on any material you copy.

Memory Backup

This product is equipped with a memory backup system that preserves tuner presets and system configuration information if the unit is accidentally unplugged or subjected to a power outage. The unit's memory is stored in an EEPROM, and thus the HK 3475 will retain information such as programmed presets without being connected to a main power source virtually indefinitely.

Processor Reset

In the rare case where the unit's operation or the displays seem abnormal, the cause may involve the erratic operation of the system's memory or microprocessor.

To correct this problem, first unplug the unit from the AC wall outlet and wait at least three minutes. After the pause, reconnect the AC power cord and check the unit's operation. If the system still malfunctions, a system reset may clear the problem.

If the system still does not respond, it may be necessary to perform a complete reset. To reset the system, first turn the HK 3475 off by pressing the Main Power Switch **1** and then releasing it so that it extends out beyond the front panel and the word "OFF" is visible in red at the top of the switch.

Next, press and hold the T-Mon and CD Input Selector Buttons **9** **13** on the front panel ONLY. While holding these buttons in, press the Main Power Switch **1** in until it latches, so that the button is flush with the front panel.

The Main Information Display **25** will briefly show the word RESET, and then return to normal operation.

When the system is reset in this fashion, all tuner presets will be lost and must be reentered.

If the system is still operating incorrectly, there may have been an electronic discharge or severe AC line interference that has corrupted the memory or microprocessor.

If these steps do not solve the problem, consult your dealer or an authorized Harman Kardon service center.

Troubleshooting Guide

This unit is designed for trouble-free operation. Most problems users encounter are due to operating errors. If you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized Harman Kardon service center.

If the problem is...	Make sure that the...
No lights appear when POWER button is pressed	Unit is plugged into a live outlet. Main power switch is pressed in.
No sound is heard	Unit has not been muted. Correct input function selector button has been pressed. Volume is turned up. Speakers have been turned on using the Speaker Selectors.
No output from one or more channels	Cables are not defective: check/replace speaker cables.
Tuner sound has a large amount of interference, or The "Stereo" display is not illuminated, or Tuner sound distorts and/or volume level is too low	Antenna is properly connected. Antenna is properly located. Antenna is set in the proper direction. Antenna is adequate to receive the desired station.
Tuner is intermittent or continuously buzzing or hissing	Unit is away from fluorescent lights, TVs, motors and other electrical appliances.
Remote does not function correctly	Batteries are not weak, and replace them if necessary. Correct device page has been selected by pressing the Source Selector Key **C**. Remote sensor is not obstructed, and remote is pointing directly at sensor at an angle of no more than 30 degrees. Also, check for fluorescent lighting, which may be interfering with the IR transmission. Remote has been reprogrammed correctly. If you are in doubt, reset the remote to the factory default programming using the procedure outlined on page 18.
Cassette or CD sounds distorted	Cassette deck or CD player has not been plugged into the Phono Input **6** (only use the outputs of a turntable or tonearm with the Phono Input **6**).
Turntable sounds distorted	Turntable has been plugged into the Phono Input **6**, as the other inputs are not compatible with turntable signal levels.

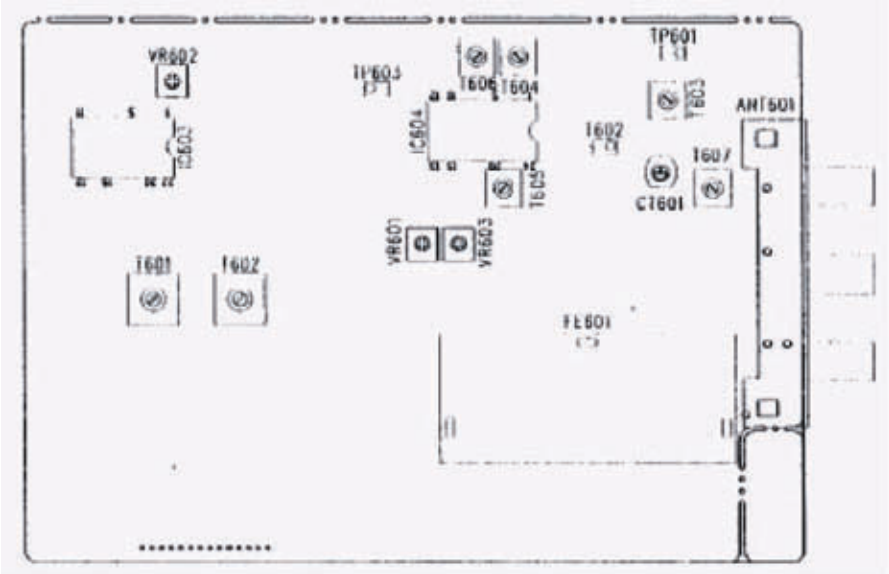
Alignment Procedures

1. Test Equipment Required.

- AM Standard Signal Generator (AM SSG)
- Oscilloscope
- AC Voltmeter
- FM Standard Signal Generator (FM SSG)
- Stereo Modulator
- Audio Generator
- Distortion Meter
- DC Voltmeter
- Frequency Counter

Note: Disconnect external FM antenna prior to alignment

2. Alignment and Test Points

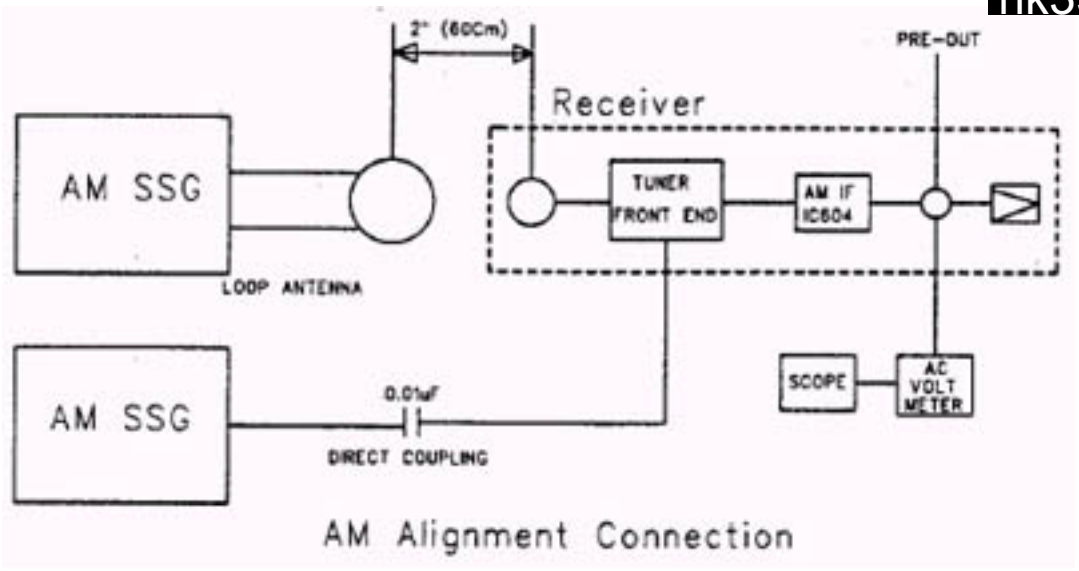


3. AM IF and RF Alingment

Preparation

1. Output of signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation: 30%
3. Switch: Press to AM.

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	990KHz (400Hz,Mod.)	520KHz	DC Voltmeter TP601	T603	1.2V reading Maximum
2	600KHz (400Hz,Mod.)	600KHz	AC Voltmeter to TAPE OUT jack	T607	reading Maximum
3	1400KHz (400Hz,Mod.)	400KHz	AC Voltmeter to TAPE OUT jack	CT601	reading Maximum
4	990KHz (400Hz,Mod.)	990KHz	AC Voltmeter to TAPE OUT jack	T605	reading FL display "TUNED"
5	990KHz (400Hz,Mod.)	990KHz	same as Step 1	VR603	Indicator on receiver with AM SSG Output level of 800 μV/m



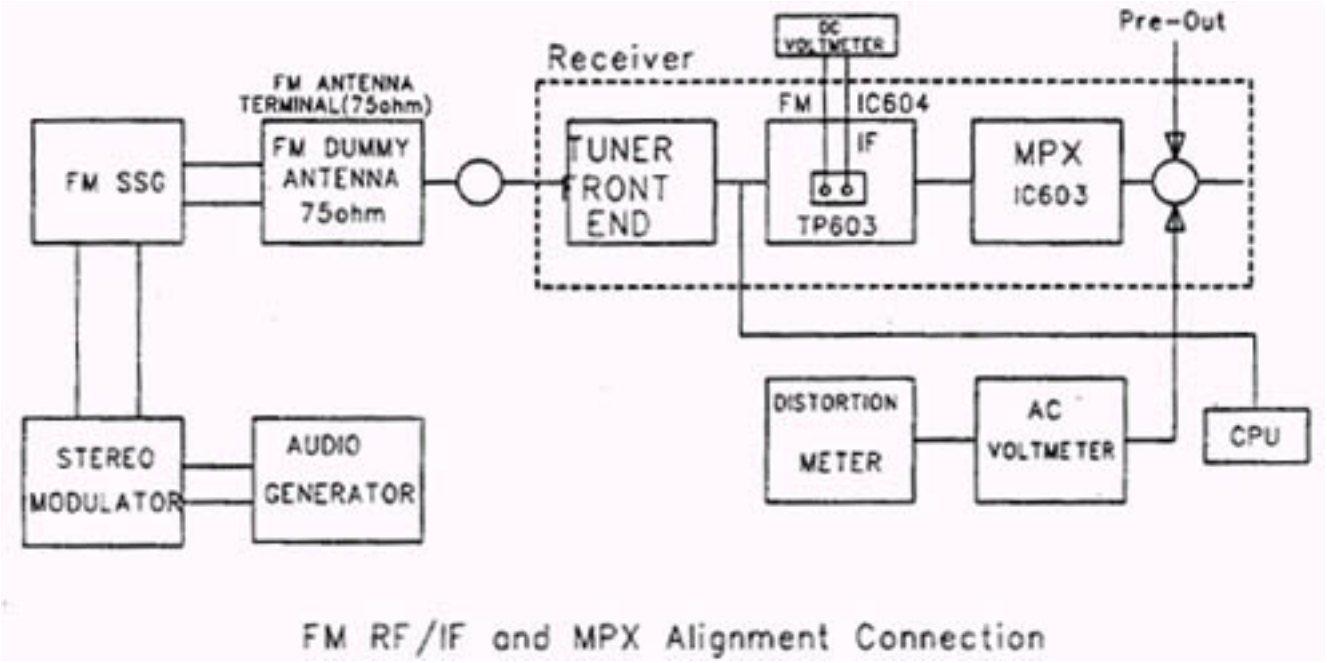
AM Alignment Connection

4. FM IF Alignment

Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch Press to FM
3. Signal Generator Deviation: 75KHz (HK 3370), 40KHz (HK 3470)

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	98.0 MHz (1KHz,Mod.)	98.0 MHz	DC Voltmeter to TP602	T606	Zero reading on DC Voltmeter
2	98.0 MHz (1KHz,Mod.)	98.0 MHz	Distortion meter to TAPE OUT jack	T604	Minimum distortion
3	98.0 MHz (1KHz,Mod.)	98.0 MHz	Same as Step 1	VR601	FL display "TUNED" Indicator on receiver with FM SSG Output level of 35.2dbf



FM RF/IF and MPX Alignment Connection

5. MPX Alignment, SM Alignment

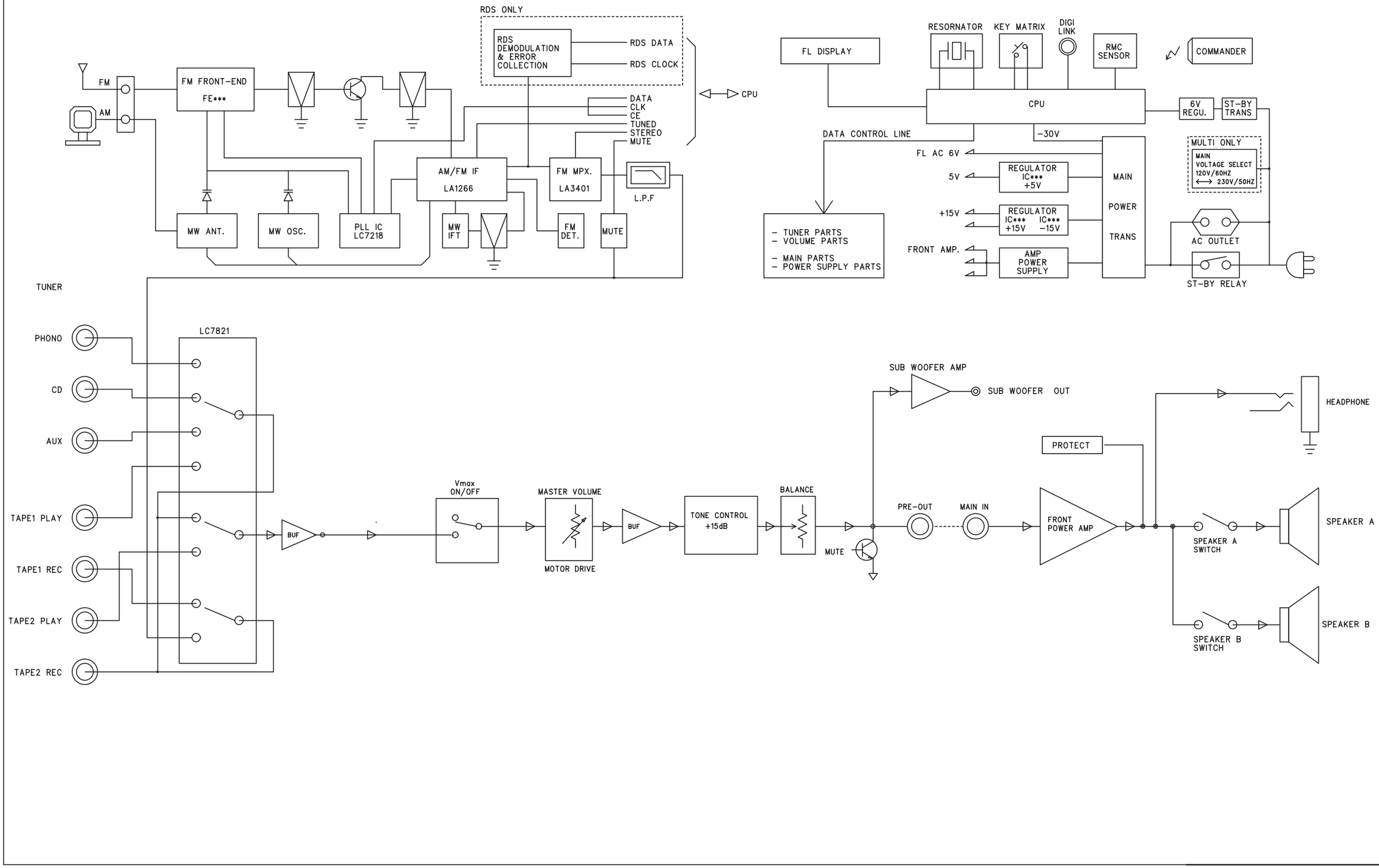
Preparation

1. Switch: Press to FM
2. Tuner for 98MHz on band.
3. Signal Generator output level: 1000μV
4. Deviation: 75KHz (HK 3370), 40KHz (HK 3470) at 100% modulation to composite signal.
5. Connect Signal Generator to FM antenna temanal through FM dummy antenna (75Ω).

Step	19KHz Modulation Level	Signal Generator Frequency Setting	Equipment Connection	Adjustment Point	Adjust for
1	7.5KHz, Mod.	Composite to channel 1KHz R	AC Voltmeter to TAPE OUT jack of R channel		Adjust for about 450mV of audio output
2	7.5KHz, Mod.	Composite to channel 1KHz L	AC Voltmeter to TAPE OUT jack of R channel	VR602	AC Voltmeter reading should be at least 40dB below.
3	7.5KHz, Mod.	Composite to channel 1KHz R	AC Voltmeter to TAPE OUT jack of L channel	VR602	Same as Step 2
If you could not obtain −40dB reading in Steps 2 and 3 (compared with Step 1), read just VR603 until you obtain −40dB readings for both steps 2 and 3. Normal is −45dB.					

BLOCK DIAGRAM

hk3375/hk3475

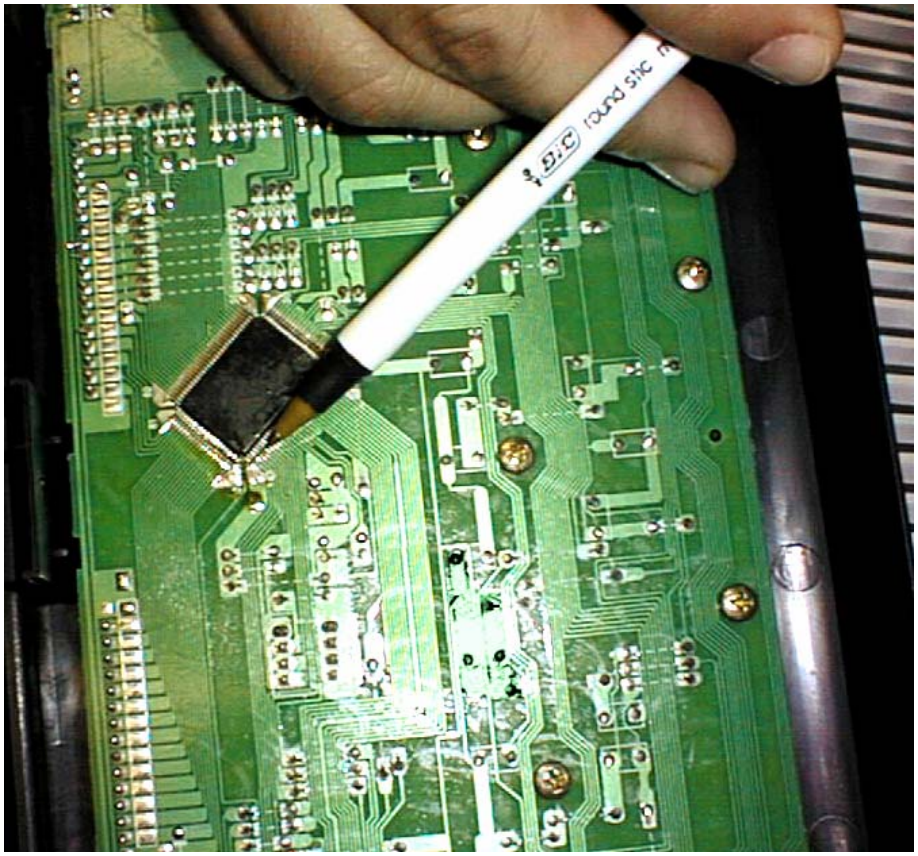


Troubleshooting tips and solutions to common service problems

For models: hk3375/hk3475 **TIP# HKTT2003-05**

Complaint: Unit will not retain Preset Tuner Memory Settings when power is completely cut off. (Loss of Preset Tuner Memory immediate after Main Power Switch cutoff, or if the unit is unplugged. Standby mode retains the settings.) *

Possible Solution: Check connections and for possible solder bridges on Microprocessor IC301 located in the Front Panel PCB; re-solder and clean.



* After approximately two weeks of being disconnected from AC supply, even a normally functioning receiver will lose any programmed settings and switch to default settings.

harman/kardon TECH TIPS

Troubleshooting tips and solutions to common service problems

For models: **TIP# HKTT2003-01 Rev5**

AVR7000/7200/7300/8000
AVR100/200/300/500
AVR110/210/310/510
AVR120/220/320/520
AVR125/225/325/525
AVR130/230/330/430/630
AVR135/235/335/435/635
AVR10
DPR1001
DPR1005
DPR2005
HK3370/3470/3375/3475
HK3250

Subject: Backup Memory on AVR/DPR/HK series receivers

In the event of the complaint: "the receiver is losing its memory (any programmed system settings) when the unit is turned off, or after the unit is unplugged (briefly*)":

Check and replace:

Model	Designator	Location	Description	Part number
AVR10	C712 D709	Front PCB	0.047 Farad 5.5v capacitor and 1N4148 diode	#3439247315 #2058322101
AVR7000	C730	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND or # J3432147324X
AVR7200	C106	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND
AVR7300	C657	DSP PCB	0.047 Farad 5.5v capacitor	# H01-CEZXA0479MN-5
AVR8000	C726	Front PCB	0.047 Farad 5.5v capacitor	# 55230310NR or # P10790-ND
AVR100/200	C412	Front PCB	0.047 Farad 5.5v capacitor	# CEGT-B473J-0J0
AVR300	C906	Front PCB	0.1Farad 5.5v capacitor	# J4433210421X or # P10791-ND
AVR500	C906	Front PCB	0.1Farad 5.5v capacitor	# J4433210421X or # P10791-ND
AVR110/210/310/510 AVR120/220/320/520	C216	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND
AVR125/225	C734,C885	Front PCB	two 0.1F capacitors in parallel	# BCESOHD104
AVR325/525	C106	Front PCB	0.047 Farad 5.5v capacitor	# P10790-ND
AVR130/230/330	BAT1	Front PCB	3.6v Battery	# HABGP40BVH3A3H
AVR135/235/335	BAT1	Front PCB	3.6v Battery	# HGP15BNH3A3H
AVR430/630	C657	DSP PCB	0.047 Farad 5.5v capacitor	# CEZXA0479MN-5
AVR435/635	C557	DSP PCB	0.047 Farad 5.5v capacitor	# H03-CEZXA0479MN-0
DPR1001	BC601	Main PCB	0.1Farad 5.5v capacitor	# CEGT-B104J-0J0
DPR1005/2005	C437	Processor PCB	0.047 Farad 5.5v capacitor	# CEZXA0479MN-5
HK3370/3470	C301	Front PCB	0.1Farad 5.5v capacitor	# CEGT-B104J-0J0
HK3375/3475	C301	Front PCB	0.1Farad 5.5v capacitor	# CEGT-B104J-0J0
HK3250	C712 D709	Front PCB	0.047 Farad 5.5v capacitor and 1N4148 diode	#3439247315 #2058322101

* After approximately two weeks of being disconnected from AC supply, even a normally functioning receiver may lose any programmed settings and switch to default settings. (Four weeks for the DPR1005 & 2005)

<1> CHASSIS-TOP(44) REMOVAL.
Remove 9 screws(A,K) and then remove the Chassis-top(44).

<2> FRONT PANEL ASS'Y(AA) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step <1>.
2. Disconnect the connector(CN 301, Card-cable) on the Front P. C. Board(d) from connector(CN 115) on the Main P. C. Board (i).
3. Disconnect the lead wire(CW 302, 5P) on the Front P. C. Board(d) from connector(CN 702) on the Volume Volume P. C. Board (b).
4. Disconnect the connector(CN 801, 2P) on the Standby P. C. Board(g) from connector(CN 102) on the Main P. C. Board (i).
5. Remove 1 screw(I) of Chassis-panel(37) and then lead wire(H 801, 1P) on the Phones P. C. Board(e).
6. Disconnect the lead wire(CW 301, 7p) on the Front P. C. Board(d) from connector(CN 113) on the Main P. C. Board(i).
7. Disconnect the lead wire(CW 801, 3P) on the Phones P. C. Board(e) from connector(CN 401) on the Amp P. C. Board(h).
8. Remove 1 screw(I) of Chassis-panel(37) and then lead wire(H 501, 1P) on the Tone P. C. Board (c).
9. Disconnect the lead wire(CW 701, 10P) on the Volume P. C. Board(b) from connector (CN 109) on the Main P. C. Board(i).
10. Remove 9 screws(H, I) and then remove the Front Panel ASS'Y(AA).

<3> FRONT P. C. BOARD(d) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Disconnect the lead wire(CW 302, 5P) from connector(CN 702) on the Volume P. C. Board(b).
4. Disconnect the connector(CN 302) from lead wire(CW 801,5P) on the Power P.C.Board (f).
5. Remove 15 screws(J) and then remove the Front P.C.Board(d).

<4> VOLUME P.C.BOARD(b) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Disconnect the connector(CN 702) from lead wire(CW 302, 5P) on the Front P. C. Board(d).
4. Disconnect the connector(CN 703) from lead wire(CW 802, 2P) on the Volume2 P. C. Board(a).
5. Disconnect the connector(CN 701) from lead wire(CW 501, 10P) on the Tone P. C. Board(c).
6. Disconnect the lead wire(CW 701,10P) from connector(CN 109) on the Main P. C. Board(i).
7. Full out the Volume Knob(1).
8. Remove 1 hexagon nut(3), 1 washer(4) and then remove the Volume P. C. Board(b).

<5> VOLUME2 P. C. BOARD(a) ASS'Y(AD) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Disconnect the lead wire(CW 802, 2P) from connector(CN 703) on the Volume P.C.Board(b).
4. Full out the Volume Knob(1).

<6> VOLUME2 P. C. BOARD(a) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Remove the Volume P. C. Board(b) ASS'Y(AD), referring to the previous step<5>.
4. Full out the Volume2 P. C. Board(a).

<7> TONE P. C. BOARD(c) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Disconnect the lead wire(CW 501, 10P) from connector(CN 701) on the Volume P. C. Board(b).
4. Pull out the Balance-knob(5).
5. Remove 4 screws(J) and then remove the Tone P. C. Board ASS'Y(AC).
6. Remove 4 hexagon nut(3) and then remove the Shield-balance(12).

<8> PHONES P. C. BOARD(e) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Disconnect the lead wire(CW 801, 3P) from connector(CN 401) on the Amp P. C. Board(h).
4. Remove 2 screws(E) and then remove the Phones P. C. Board(e).

<9> POWER P. C. BOARD(f) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Disconnect the lead wire(CW 801, 5P) from connector(CN 302) on the Front P. C. Board(d).
4. Remove 2 screws(J) and then remove the Power P. C. Board(f).

<10> STANDBY P. C. BOARD(g) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Front-panel ASS'Y(AA), referring to the previous step<2>.
3. Remove 2 screws(J) and then remove the Standby P. C. Board(g).

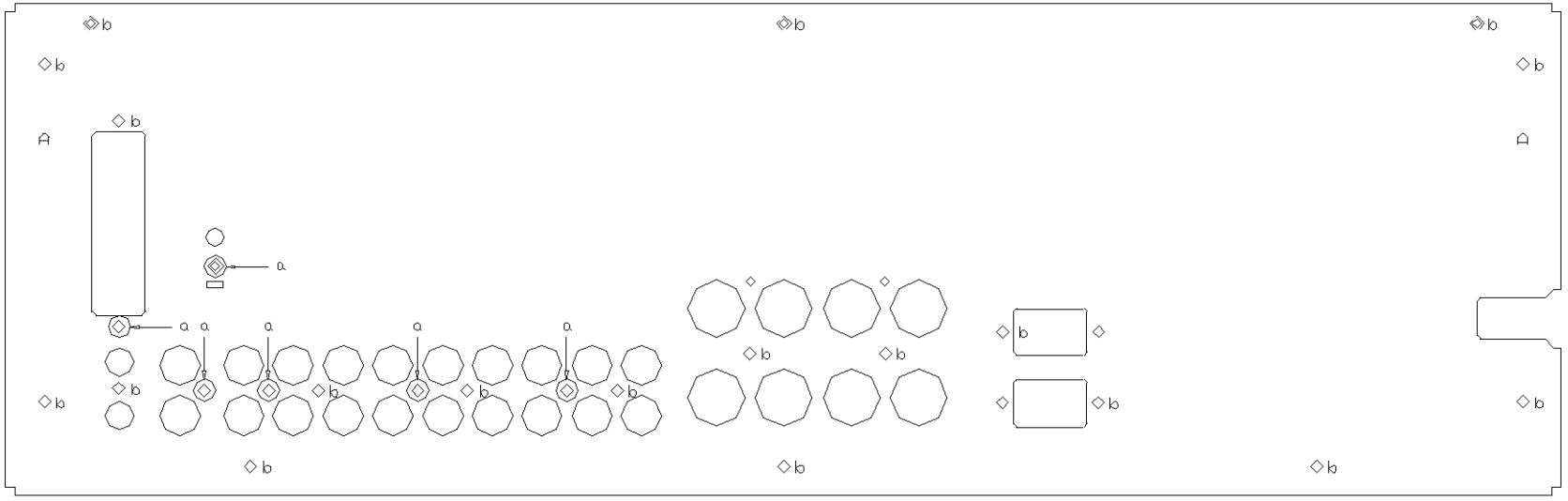
<11> TUNER P. C. BOARD(j) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove 21 screws(G,K) and then remove the Chassis-back(41).
3. Pull out the Tuner P. C. Board(j).

<12> RADIATOR ASS'Y(AB) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Disconnect the connector(CN 401) from lead wire(CW 801, 3P) on the Phones P. C. Board(e).
3. Disconnect the lead wire(CW 403, 4P) from connector(CN 111, CN 112) on the Main P. C. Board(i).
4. Disconnect the lead wire(CW 402, 10P) from connector(CN 107) on the Main P. C. Board(i).
5. Disconnect the lead wire(CW 401, 4P) from connector(CN 108) on the Main P. C. Board(i).
6. Remove 7 screws(I) and then pull out the Radiator Ass'Y(AB).

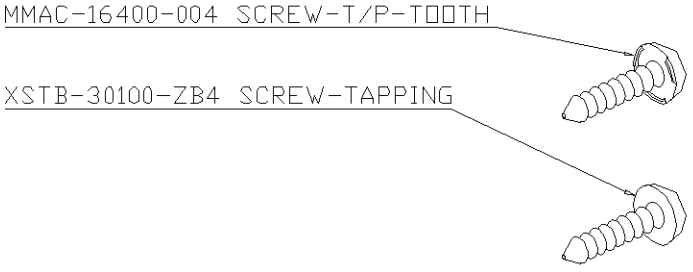
<13> AMP P. C. BOARD(h) REMOVAL.
1. Remove the Chassis-top(44), referring th the previous step<1>.
2. Remove the Radiator Ass'Y(AB), referring to the Previous step<12>.
3. Disconnect the connector(CN 402) from lead wire(posistor, 2P) on the Radiator-main (21).
4. Remove 4 screws(D) and then remove the Amp P. C. Board(h).

<14> POWER TRANS(38) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Disconnect the lead wire(2P) from connector(CN 103) on the Main P. C. Board(i).
3. Disconnect the lead wire(3P) from connector(CN 104) on the Main P. C. Board(i).
4. Disconnect the lead wire(6P) from connector(CN 105) on the Main P. C. Board(i).
5. Disconnect the lead wire(3P) from connector(CN 106) on the Main P. C. Board(i).
6. Remove 4 screws(B) and then remove the Power trans(38).

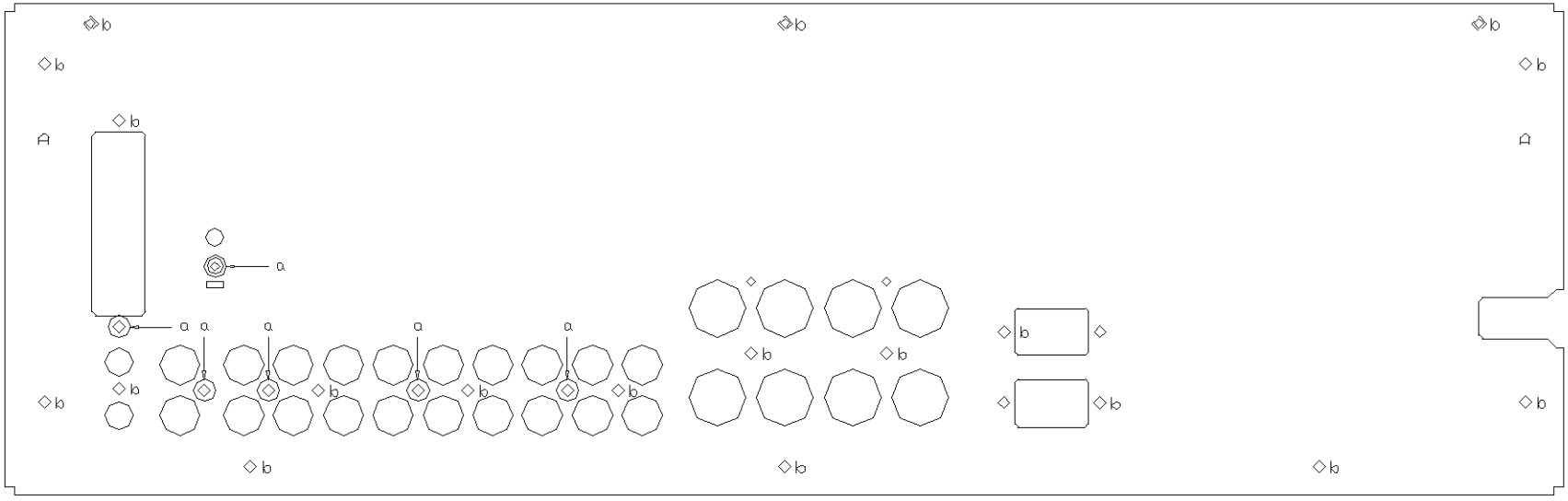
<15> MAIN P. C. BOARD(i) REMOVAL.
1. Remove the Chassis-top(44), referring to the previous step<1>.
2. Remove the Tuner P. C. Board(j), referring to the previous step<11>.
3. Disconnect the connector(CN 109) from lead wire(CW 701, 10P) on the Volume P. C. Board(b).
4. Disconnect the connector(CN 108) from lead wire(CW 401, 4P) on the Amp P. C. Board(h).
5. Disconnect the connector(CN 115) from connector(CN 301, card cable) on the Front P. C. Board(d).
6. Disconnect the connector(CN 107) from lead wire(CW 402, 10P) on the Amp P. C. Board(h).
7. Disconnect the connector(CN 106) from lead wire(3P) on the Power-trans(38).
8. Disconnect the connector(CN 105) from lead wire(6P) on the Power-trans(38).
9. Disconnect the connector(CN 113) from lead wire(CW 301, 7P) on the Front P. C. Board(d).
10. Disconnect the connector(CN 104) from lead wire(3P) on the Power-trans(38).
11. Disconnect the connector(CN 111, CN 112) from lead wire(CW 403, 4P) on the Amp P. C. Board(h).
12. Disconnect the connector(CN 102) from lead wire(CN 801, 2P) on the Standby P. C. Board(g).
13. Disconnect the connector(CN 103) from lead wire(2P) on the Power-trans(38).
14. Disconnect the connector(CN 101) from Ac cord(40).



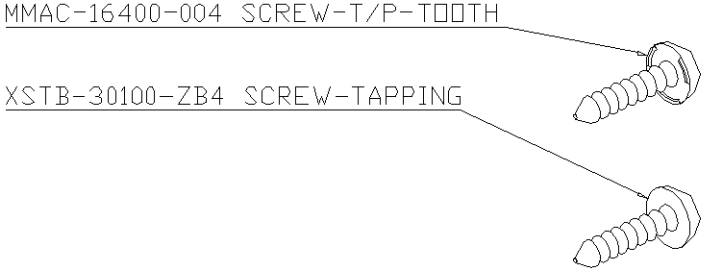
* a POINT(6) : MMAC-16400-004 SCREW-T/P-TOOTH(FOR GROUNDING)
* b POINT(19) : XSTB-30100-ZB4 SCREW-TAPPING



Principal Screw Location

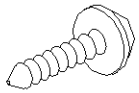


* a POINT(6) : MMAC-16400-004 SCREW-T/P-TOOTH(FOR GROUNDING)
* b POINT(19) : XSTB-30100-ZB4 SCREW-TAPPING

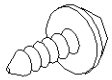


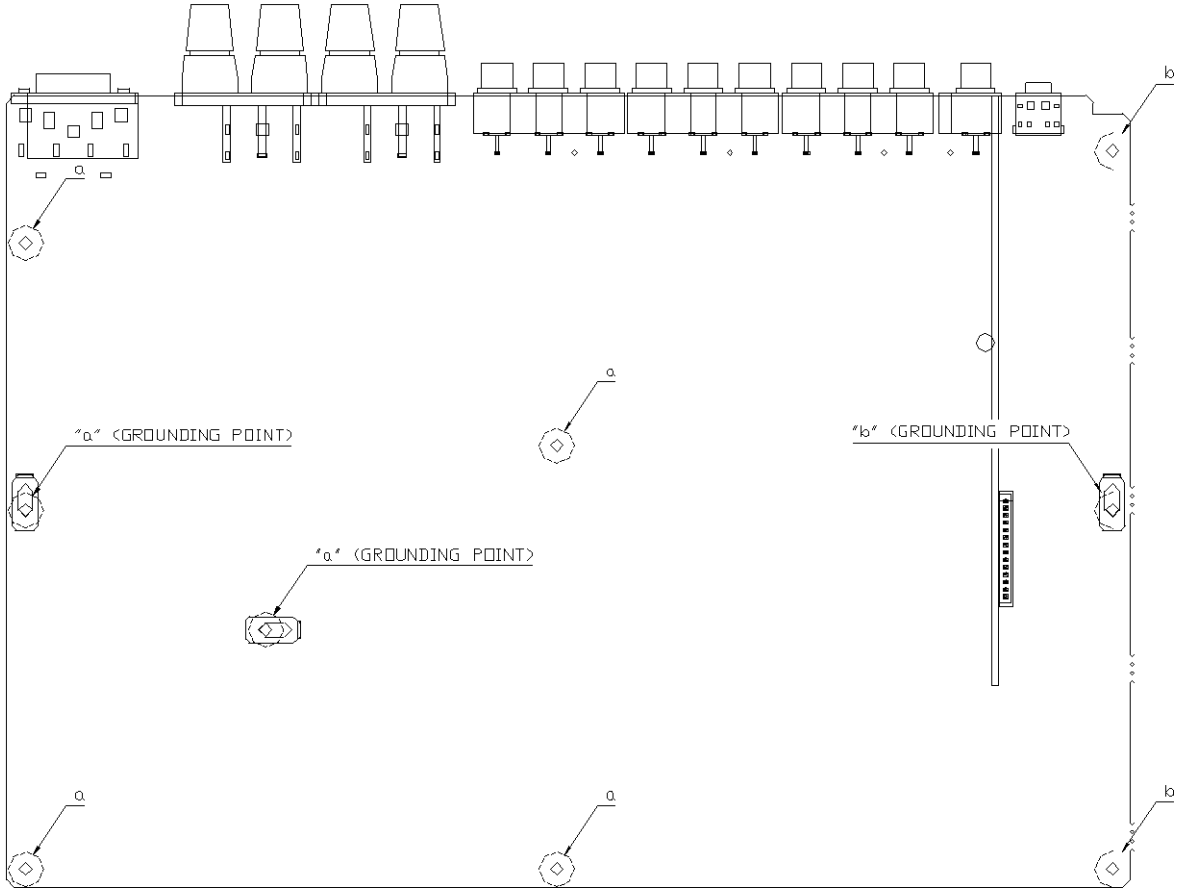
: PRINCIPAL SCREW LOCATION

* a POINT
- XSTS-30180-ZY4 SCREW-TAPPING



* b POINT
- XSTS-30080-ZY4 SCREW-TAPPING

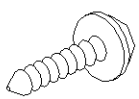




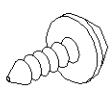
* a POINT(6) : XSTS-30180-ZY4 SCREW-TAPPING
* b POINT(3) : XSTS-30080-ZY4 SCREW-TAPPING

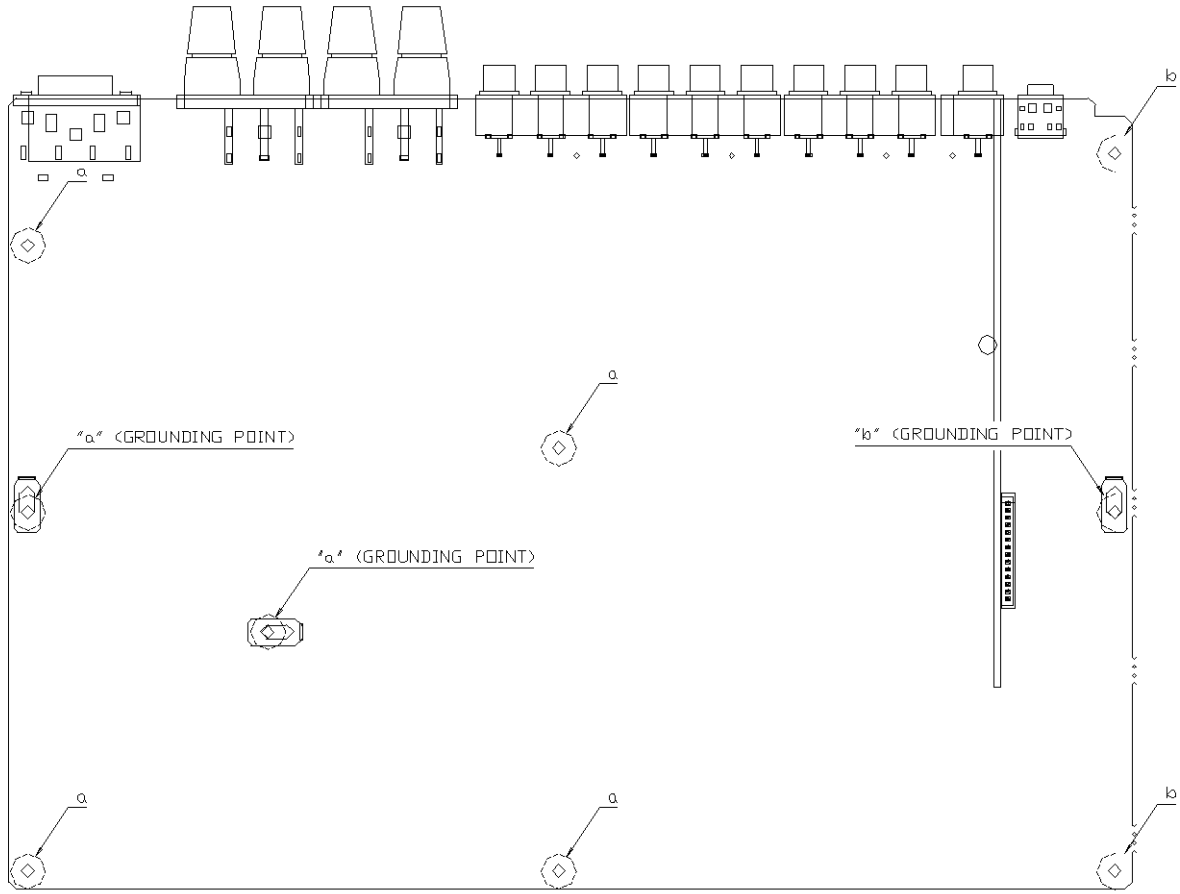
PRINCIPAL SCREW LOCATION

* a POINT
- XSTS-30180-ZY4 SCREW-TAPPING



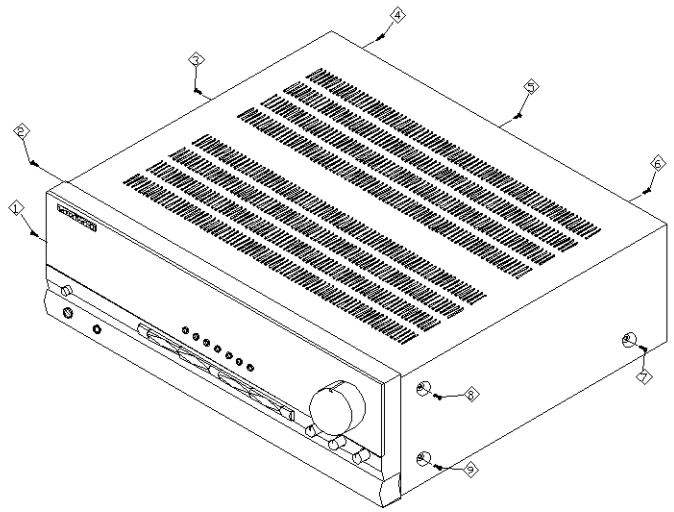
* b POINT
- XSTS-30080-ZY4 SCREW-TAPPING



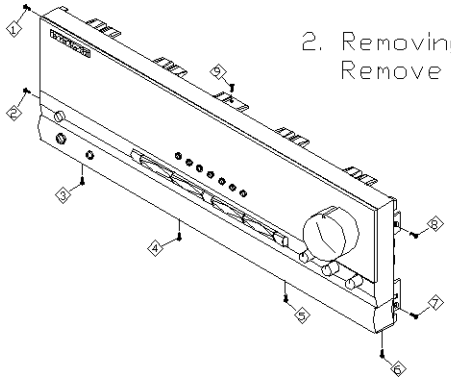


* a POINT(6) : XSTS-30180-ZY4 SCREW-TAPPING
* b POINT(3) : XSTS-30080-ZY4 SCREW-TAPPING

1. Removing the Chassis Top
Remove the screws ①-⑨

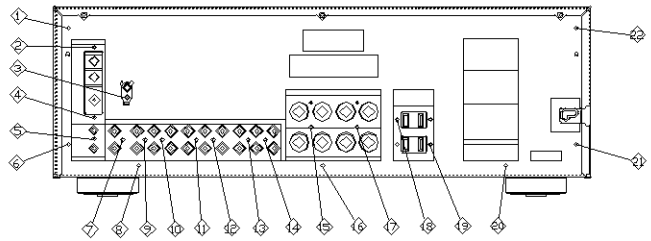


2. Removing the Front Panel
Remove the screws ①-⑨

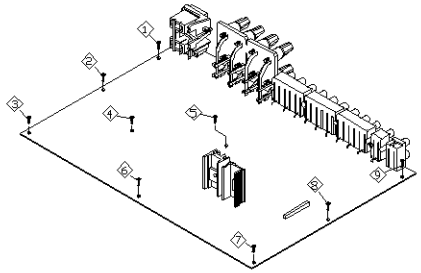


hk3375

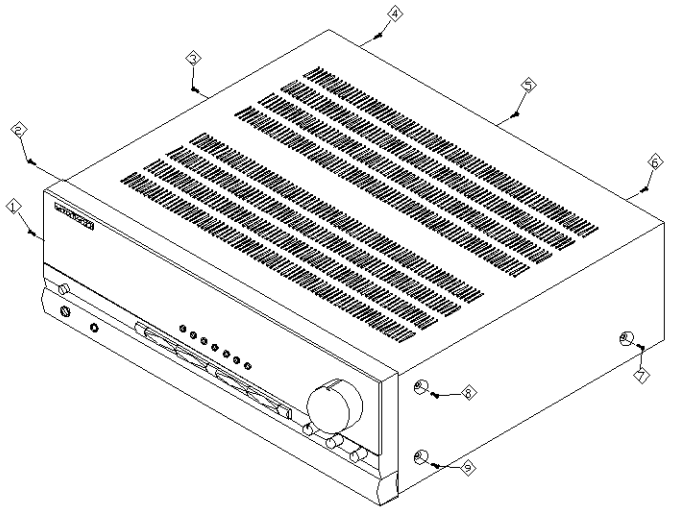
3. Removing the Rear Panel
Remove the screws ①-㉓



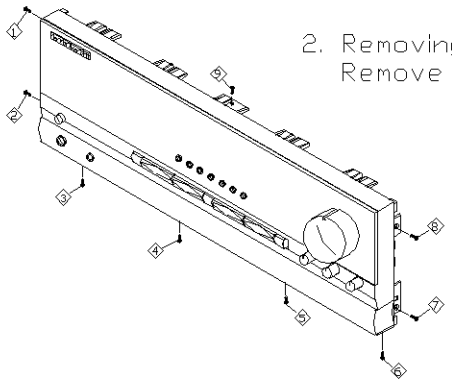
4. Removing the Main PCB Block
Remove the screws ①-⑨



1. Removing the Chassis Top
Remove the screws ①~⑨

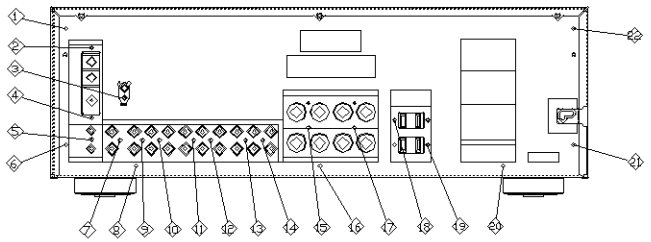


2. Removing the Front Panel
Remove the screws ①~⑨

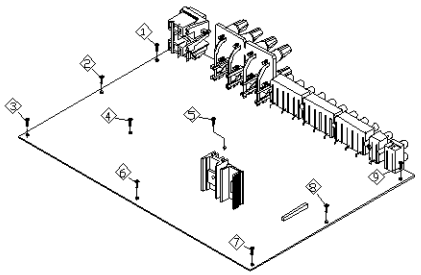


hk3475

3. Removing the Rear Panel
Remove the screws ①~㉒



4. Removing the Main PCB Block
Remove the screws ①~⑨



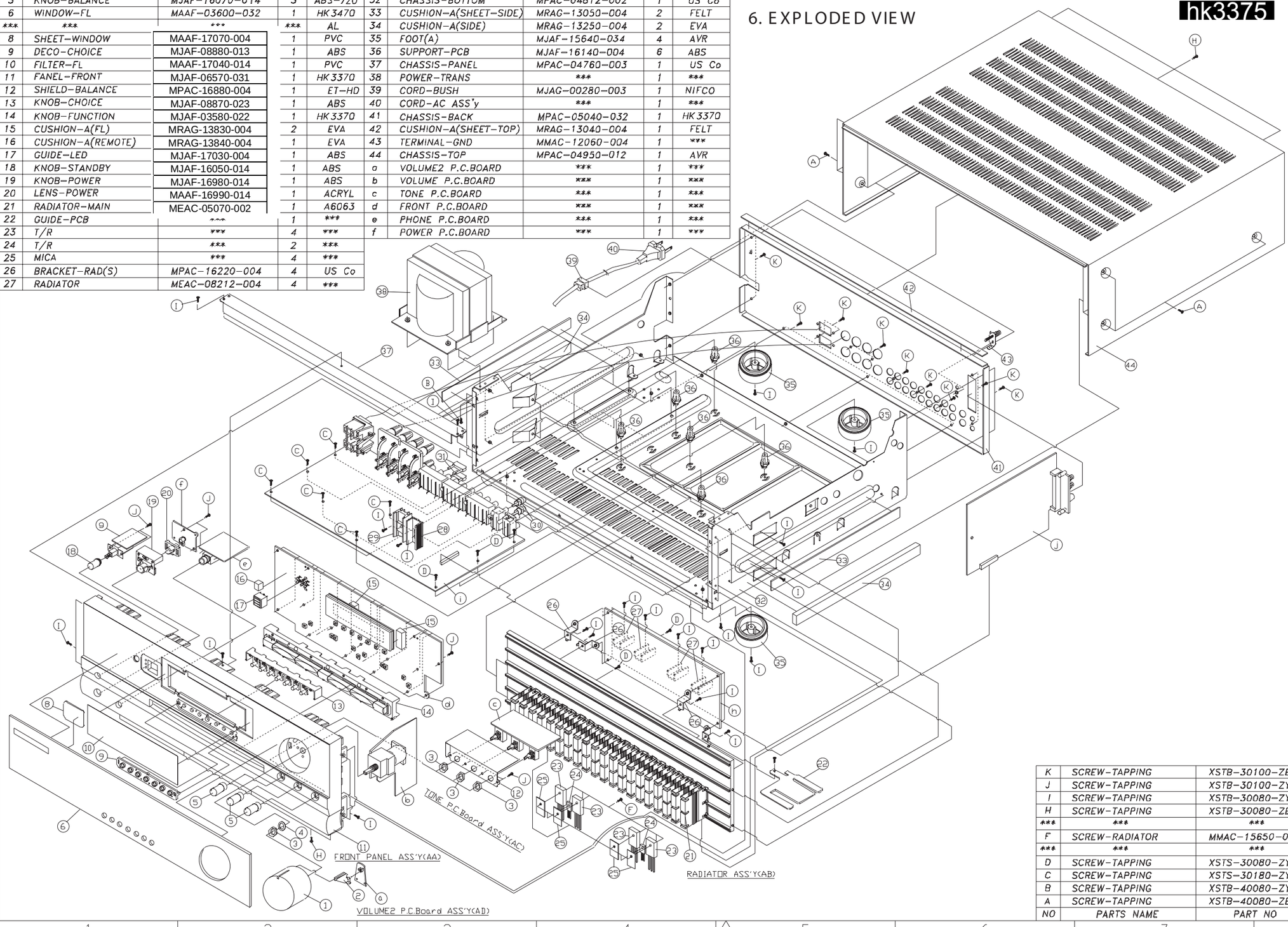
NO	PARTS NAME	PART NO	Q'TY	REMARK
1	KNOB-VOLUME	MJAF-16100-014	1	ABS
2	LENS-VOLUME	MAAF-16130-014	1	PMMA(IF850)
3	NUT	***	4	***
4	WASHER	***	1	***
5	KNOB-BALANCE	MJAF-16070-014	3	ABS-720
6	WINDOW-FL	MAAF-03600-032	1	HK3470
***	***	***	***	AL
8	SHEET-WINDOW	MAAF-17070-004	1	PVC
9	DECO-CHOICE	MJAF-08880-013	1	ABS
10	FILTER-FL	MAAF-17040-014	1	PVC
11	FANEL-FRONT	MJAF-06570-031	1	HK3370
12	SHIELD-BALANCE	MPAC-16880-004	1	ET-HD
13	KNOB-CHOICE	MJAF-08870-023	1	ABS
14	KNOB-FUNCTION	MJAF-03580-022	1	HK3370
15	CUSHION-A(FL)	MRAG-13830-004	2	EVA
16	CUSHION-A(REMOTE)	MRAG-13840-004	1	EVA
17	GUIDE-LED	MJAF-17030-004	1	ABS
18	KNOB-STANDBY	MJAF-16050-014	1	ABS
19	KNOB-POWER	MJAF-16980-014	1	ABS
20	LENS-POWER	MAAF-16990-014	1	ACRYL
21	RADIATOR-MAIN	MEAC-05070-002	1	A6063
22	GUIDE-PCB	***	1	***
23	T/R	***	4	***
24	T/R	***	2	***
25	MICA	***	4	***
26	BRACKET-RAD(S)	MPAC-16220-004	4	US Co
27	RADIATOR	MEAC-08212-004	4	***

NO	PARTS NAME	PART NO	Q'TY	REMARK
28	RADIATOR-TR	MEAC-08215-004	1	***
29	HEAT-SINK(TR)	MEAC-12693-004	1	***
30	PLUG-RCA	PLRC-00020-S30	2	SHORT JACK
31	JACK-CONNECT	MMAC-17070-004	2	***
32	CHASSIS-BOTTOM	MPAC-04812-002	1	US Co
33	CUSHION-A(SHEET-SIDE)	MRAG-13050-004	2	FELT
34	CUSHION-A(SIDE)	MRAG-13250-004	2	EVA
35	FOOT(A)	MJAF-15640-034	4	AVR
36	SUPPORT-PCB	MJAF-16140-004	6	ABS
37	CHASSIS-PANEL	MPAC-04760-003	1	US Co
38	POWER-TRANS	***	1	***
39	CORD-BUSH	MJAG-00280-003	1	NIFCO
40	CORD-AC ASS'y	***	1	***
41	CHASSIS-BACK	MPAC-05040-032	1	HK3370
42	CUSHION-A(SHEET-TOP)	MRAG-13040-004	1	FELT
43	TERMINAL-GND	MMAC-12060-004	1	***
44	CHASSIS-TOP	MPAC-04950-012	1	AVR
a	VOLUME2 P.C.BOARD	***	1	***
b	VOLUME P.C.BOARD	***	1	***
c	TONE P.C.BOARD	***	1	***
d	FRONT P.C.BOARD	***	1	***
e	PHONE P.C.BOARD	***	1	***
f	POWER P.C.BOARD	***	1	***

NO	PARTS NAME	PART NO	Q'TY	REMARK
g	STANDBY P.C.BOARD	***	1	***
h	AMP P.C.BOARD	***	1	***
i	MAIN P.C.BOARD	***	1	***
j	TUNER P.C.BOARD	***	1	***

6. EXPLODED VIEW

hk3375



K	SCREW-TAPPING	XSTB-30100-ZB4	9	BHTZT
J	SCREW-TAPPING	XSTB-30100-ZY4	23	BHTZT
I	SCREW-TAPPING	XSTB-30080-ZY4	21	BHTZT
H	SCREW-TAPPING	XSTB-30080-ZB4	7	BHTZT
***	***	***	***	***
F	SCREW-RADIATOR	MMAC-15650-004	6	***
***	***	***	***	***
D	SCREW-TAPPING	XSTS-30080-ZY4	8	PHWT
C	SCREW-TAPPING	XSTS-30180-ZY4	6	***
B	SCREW-TAPPING	XSTB-40080-ZY8	4	BHT
A	SCREW-TAPPING	XSTB-40080-ZB8	6	BHT
NO	PARTS NAME	PART NO	Q'TY	REMARK

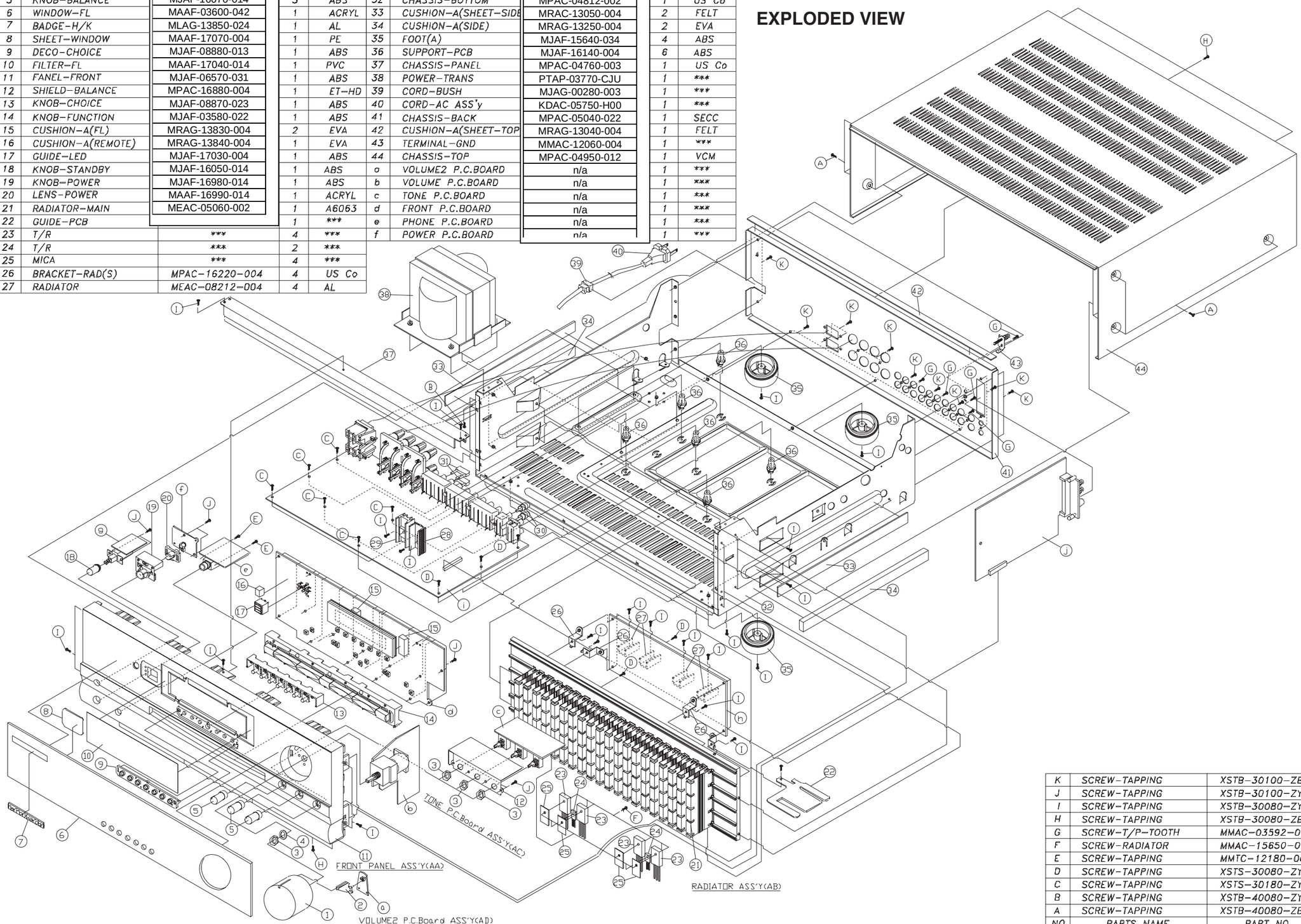
NO	PARTS NAME	PART NO.	Q'TY	REMARK
1	KNOB-VOLUME	MJAF-16100-014	1	ABS
2	LENS-VOLUME	MAAF-16130-014	1	ACRYL
3	NUT	n/a	4	***
4	WASHER	n/a	1	***
5	KNOB-BALANCE	MJAF-16070-014	3	ABS
6	WINDOW-FL	MAAF-03600-042	1	ACRYL
7	BADGE-H/K	MLAG-13850-024	1	AL
8	SHEET-WINDOW	MAAF-17070-004	1	PE
9	DECO-CHOICE	MJAF-08880-013	1	ABS
10	FILTER-FL	MAAF-17040-014	1	PVC
11	FANEL-FRONT	MJAF-06570-031	1	ABS
12	SHIELD-BALANCE	MPAC-16880-004	1	ET-HD
13	KNOB-CHOICE	MJAF-08870-023	1	ABS
14	KNOB-FUNCTION	MJAF-03580-022	1	ABS
15	CUSHION-A(FL)	MRAG-13830-004	2	EVA
16	CUSHION-A(REMOTE)	MRAG-13840-004	1	EVA
17	GUIDE-LED	MJAF-17030-004	1	ABS
18	KNOB-STANDBY	MJAF-16050-014	1	ABS
19	KNOB-POWER	MJAF-16980-014	1	ABS
20	LENS-POWER	MAAF-16990-014	1	ACRYL
21	RADIATOR-MAIN	MEAC-05060-002	1	A6063
22	GUIDE-PCB		1	***
23	T/R	***	4	***
24	T/R	***	2	***
25	MICA	***	4	***
26	BRACKET-RAD(S)	MPAC-16220-004	4	US Co
27	RADIATOR	MEAC-08212-004	4	AL

NO	PARTS NAME	PART NO.	Q'TY	REMARK
28	RADIATOR-TR	MEAC-08215-004	1	AL
29	HEAT-SINK(TR)	MEAC-12693-004	1	AL
30	PLUG-RCA	PLRC-00020-S30	2	***
31	JACK-CONNECT	MMAC-17070-004	2	***
32	CHASSIS-BOTTOM	MPAC-04812-002	1	US Co
33	CUSHION-A(SHEET-SIDE	MRAC-13050-004	2	FELT
34	CUSHION-A(SIDE)	MRAG-13250-004	2	EVA
35	FOOT(A)	MJAF-15640-034	4	ABS
36	SUPPORT-PCB	MJAF-16140-004	6	ABS
37	CHASSIS-PANEL	MPAC-04760-003	1	US Co
38	POWER-TRANS	PTAP-03770-CJU	1	***
39	CORD-BUSH	MJAG-00280-003	1	***
40	CORD-AC ASS'y	KDAC-05750-H00	1	***
41	CHASSIS-BACK	MPAC-05040-022	1	SECC
42	CUSHION-A(SHEET-TOP	MRAG-13040-004	1	FELT
43	TERMINAL-GND	MMAC-12060-004	1	***
44	CHASSIS-TOP	MPAC-04950-012	1	VCM
a	VOLUME2 P.C.BOARD	n/a	1	***
b	VOLUME P.C.BOARD	n/a	1	***
c	TONE P.C.BOARD	n/a	1	***
d	FRONT P.C.BOARD	n/a	1	***
e	PHONE P.C.BOARD	n/a	1	***
f	POWER P.C.BOARD	n/a	1	***

NO	PARTS NAME	PART NO	Q'TY	REMARK
g	STANDBY P.C.BOARD	***	1	***
h	AMP P.C.BOARD	***	1	***
i	MAIN P.C.BOARD	***	1	***
j	TUNER P.C.BOARD	***	1	***

hk3475

EXPLODED VIEW



K	SCREW-TAPPING	XSTB-30100-ZB4	16	***
J	SCREW-TAPPING	XSTB-30100-ZY4	23	***
I	SCREW-TAPPING	XSTB-30080-ZY4	23	***
H	SCREW-TAPPING	XSTB-30080-ZB4	7	***
G	SCREW-T/P-TOOTH	MMAC-03592-004	6	***
F	SCREW-RADIATOR	MMAC-15650-004	6	***
E	SCREW-TAPPING	MMTC-12180-004	2	***
D	SCREW-TAPPING	XSTS-30080-ZY4	8	***
C	SCREW-TAPPING	XSTS-30180-ZY4	6	***
B	SCREW-TAPPING	XSTB-40080-ZY8	4	***
A	SCREW-TAPPING	XSTB-40080-ZB8	6	***
NO	PARTS NAME	PART NO	Q'TY	REMARK

hk3375 Parts List

Ref. No.	Part No.	Description	
	BLOCK SUB		
	ZBNG-00700-4ZL	BOND-ADHESIVE	#575
	ZBNG-01300-5ZL	LOCKER-SCREW	#1401B
#	ZGSI-01000-9PN	GREASE-SILICON	G-746
	ZSBR-00010-060	SOLDER-BAR	SN60
#	ZSWR-00010-F60	SOLDER-WIRE	D1.0 SN60
#	ZTOP-00701-50C	TAPE-OPP	
	ZTWF-01200-039	TAPE-DOUBLE FACE	TESA 4968 W = 3.0 t=0.32
#	ZZFX-00010-000	FLUX	ROSIN 28
	ZZTH-00010-000	DILUENT	ROSIN
	BLOCK MECHA		
	ACRC-00670-000	ASS'Y-REMOCON	HK3370RC
	ANTL-00060-E50	ANTENNA-LOOP	AAN-007 19.5uH 7T 125x93
	ANTT-00054-075	ANTENNA-T TYPE	75ohm W/TER(Y)-1200m/m
	BAMN-00010-150	BATTERY MANGANESE	R03(AAAM) 1.5V 10.5x44.5
	FGFB-O2002-831	FUSE GLASS	2A 125V 51S
	FGFB-O3151-831	FUSE GLASS	315mA 125V 5x20 U/C SB
	FGFB-O5002-831	FUSE GLASS	5A 125V 5x20 U/C SB
	KDAC-0575D-H00	CORD-AC	KKP-10W WITH CORE
	LLA3-20401-E10	CARD CABLE	1.25x20Px400xCx(0.1x0.8)
	MAAF-03600-012	WINDOW-FL	HK3370 ACRYL T=3.0 (L
	MAAF-16130-014	LENS-VOLUME	HK3370 PMMA(IF-850)
	MAAF-16990-014	LENS-POWER	HK3370 ACRYL
	MAAF-17040-014	FILTER-FL	HK3370 PVC T0.5
	MAAF-17070-004	SHEET-WINDOW	PE(DRAFTING FILM)
	MEAC-05070-002	RADIATOR-MAIN	A6063 T-5
	MJAF-03580-012	KNOB-FUNCTION	HK3370 ABS
	MJAF-06570-011	PANEL-FRONT	HK3370 ABS
	MJAF-08870-013	KNOB-CHOICE	HK3370 ABS
	MJAF-08880-013	DECO-CHOICE	HK3370 ABS
	MJAF-15640-014	FOOT(A)	AVR200
	MJAF-16050-014	KNOB-STANDBY	AVR200 ABS-720
	MJAF-16070-014	KNOB-BALANCE	AVR200 ABS-720
	MJAF-16100-014	KNOB-VOLUME	HK3370 ABS-720
	MJAF-16140-004	SUPPORT-PCB	ABS-720
	MJAF-16980-014	KNOB-POWER	HK3370 ABS
	MJAF-17030-004	GUIDE-LED	ABS
	MJAG-00280-003	CORD-BUSH	NIFCO
	MJAG-04540-004	CABLE-TIE-L80	*
	MLAG-13850-014	BADGE-H/K	HK3370 AL
	MMAC-12060-004	TERMINAL-GND	
	MMAC-15650-004	SCREW-RADIATOR	
	MMAC-16400-004	SCREW-T/P-TOOTH	3X10 BLACK
	MMAC-17070-004	JACK-CONNECT	
	MMSC-00900-004	AIR-STAPLER	
	MMTC-00751-003	SCREW-TAPPING	BHW T2T 3x8 FE-ZY
	MPAC-04760-003	CHASSIS-PANEL	US Coating t1.0
	MPAC-04812-002	CHASSIS-BOTTOM	US COATING T1.2
	MPAC-04950-012	CHASSIS-TOP	AVR200 SECC(T0.6) + P
	MPAC-05040-012	CHASSIS-BACK	HK3370 SECC T0.8
	MPAC-16220-004	BRACKET-RADIATOR(S)	US COATING T1.0

Ref. No.	Part No.	Description	
	BLOCK MECHA		
	MPAC-16880-004	SHIELD-BALANCE	ET-HD T0.5
	MRAG-13040-004	CUSHION-A	FELT 437x10x0.5 S
	MRAG-13050-004	CUSHION-A	FELT 250x10x0.5 S
	MRAG-13250-004	CUSHION-A	EVA T=5.0
	MWAW-00910-003	PALLETS	1040X1126X141
	PLRC-00020-S30	PLUG RCA	SHORT JACK
	PTAN-03790-CJU	POWER TRANSFORMER	A86-379C-U(120V 60Hz)
	TFMA-00100-D00	TRANSFORMER-MATCHIN(	MT115050 300ohm & 75ohm
Q209	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q213	TRSC-01340-SJ0	TRANSISTOR P-H FREQ	2SC3856
Q214	TRSA-00950-SJ0	TRANSISTOR P-H FREQ	2SA-1492
Q224	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q228	TRSC-01340-SJ0	TRANSISTOR P-H FREQ	2SC3856
Q229	TRSA-00950-SJ0	TRANSISTOR P-H FREQ	2SA-1492
Q239	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q243	TRSC-01340-SJ0	TRANSISTOR P-H FREQ	2SC3856
Q244	TRSA-00950-SJ0	TRANSISTOR P-H FREQ	2SA-1492
Q254	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q256	TRSC-01340-SJ0	TRANSISTOR P-H FREQ	2SC3856
Q259	TRSA-00950-SJ0	TRANSISTOR P-H FREQ	2SA-1492
Q269	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q273	TRSC-01340-SJ0	TRANSISTOR P-H FREQ	2SC3856
Q274	TRSA-00950-SJ0	TRANSISTOR P-H FREQ	2SA-1492
	U348-9B350-480	WIRE-ASS'Y	1618#18-500 WHT 3P
	VSPO-00010-100	POSISTOR	P42T8D100BW23
	XSTB-30080-ZB4	SCREW-TAPPING	BHT2T 3x8 FE-ZB
	XSTB-30080-ZY4	SCREW-TAPPING	BHT2T 3x8 FE-ZY
	XSTB-30100-ZB4	SCREW-TAPPING	BHT2T 3x10 FE-ZB
	XSTB-30100-ZY4	SCREW-TAPPING	BHT2T 3x10 FE-ZY
	XSTB-40080-ZB8	SCREW-TAPPING	BHT3T 4x8 FE-ZB
	XSTB-40080-ZY8	SCREW-TAPPING	BHT3T 4x8 FE-ZY
	XSTS-30080-ZY4	SCREW-TAPPING	PHWT2T 3x8 FE-ZY
	XSTS-30180-ZY4	SCREW-TAPPING	PHWT2T 3x18 FE-ZY
	YGAP-14860-054	BOX-GIFT	HK3370 535X480X231 DW
	YSAP-12070-002	CUSHION-L/R	EPS
	YVAP-01862-004	POLY-BAG-F	*
	YVAP-13320-004	TOLON-SHEET	750x1200 0.5t
	7JJG-00212-001	PACKING WRAP	500mm*1400m
	BLOCK MAIN PCB		
C101	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C102	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C119	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C120	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C134	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T
C135	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C136	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C137	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C139	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C140	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C141	CCAT-J102K-AAB	CAPACITOR CERAMIC	1000PF K 50V B T

Ref. No.	Part No.	Description
	BLOCK MAIN PCB	
C142	CCAT-J102K-AAB	CAPACITOR CERAMIC 1000PF K 50V B T
C143	CEET-D101M-CI0	CAPACITOR E/ALUMINUM 100uF M 10V 5x11 T
C144	CEET-D101M-CI0	CAPACITOR E/ALUMINUM 100uF M 10V 5x11 T
C145	CFMT-N152J-CJ0	CAPACITOR F/POLYESTR 0.0015uF J 100V 5.4x12 T
C146	CFMT-N152J-CJ0	CAPACITOR F/POLYESTR 0.0015uF J 100V 5.4x12 T
C147	CFMT-N562J-DJ0	CAPACITOR F/POLYESTR 0.0056uF J 100V 5.8x12 T
C148	CFMT-N562J-DJ0	CAPACITOR F/POLYESTR 0.0056uF J 100V 5.8x12 T
C149	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C150	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C151	CFMT-N182J-CJ0	CAPACITOR F/POLYESTR 0.0018uF J 100V 5.5x12 T
C152	CFMT-N182J-CJ0	CAPACITOR F/POLYESTR 0.0018uF J 100V 5.5x12 T
C153	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C154	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C155	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C156	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C157	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C158	CCAT-J101K-AAB	CAPACITOR CERAMIC 100PF K 50V B T
C159	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C160	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C161	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C162	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C163	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C164	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C173	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C174	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C175	CCAT-J102K-AAB	CAPACITOR CERAMIC 1000PF K 50V B T
C176	CCAT-J102K-AAB	CAPACITOR CERAMIC 1000PF K 50V B T
C177	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C178	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C179	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C180	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C183	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C184	CACS-S472M-179	CAPACITOR AC DE7100F472M
C185	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
C186	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
C187	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
C188	CEET-F102M-HN0	CAPACITOR E/ALUMINUM 1000uF M 25V 13x16 T
C189	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C190	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C191	CCAT-F223Z-AAF	CAPACITOR CERAMIC 0.022uF Z 25V F T
C192	CCAT-F223Z-AAF	CAPACITOR CERAMIC 0.022uF Z 25V F T
C194	CEET-J470M-DI0	CAPACITOR E/ALUMINUM 47uF M 50V 6.3x11 T
C195	CEET-J470M-DI0	CAPACITOR E/ALUMINUM 47uF M 50V 6.3x11 T
C196	CCCT-J104Z-0FF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C197	CFMT-N103J-DE0	CAPACITOR F/POLYESTR 0.01uF J 100V 6x7 T
C198	CFMT-N103J-DE0	CAPACITOR F/POLYESTR 0.01uF J 100V 6x7 T
C199	CFMT-N103J-DE0	CAPACITOR F/POLYESTR 0.01uF J 100V 6x7 T
C200	CEET-E471M-FI1	CAPACITOR E/ALUMINUM 470uF M 16V 8x11.5 U T
C201	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C202	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C203	CFMT-N103J-DE0	CAPACITOR F/POLYESTR 0.01uF J 100V 6x7 T

Ref. No.	Part No.	Description
	BLOCK MAIN PCB	
C204	CFMT-N103J-DE0	CAPACITOR F/POLYESTR 0.01uF J 100V 6x7 T
C205	CFMT-N103J-DE0	CAPACITOR F/POLYESTR 0.01uF J 100V 6x7 T
C206	CEEM-G222M-LR1	CAPACITOR E/ALUMINUM 2200uF M 35V 16x31.5 U M
C207	CEEM-G222M-LR1	CAPACITOR E/ALUMINUM 2200uF M 35V 16x31.5 U M
C208	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C209	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C210	CEET-G221M-HJ1	CAPACITOR E/ALUMINUM 220uF M 35V 10x12.5 U T
C211	CFMT-S104K-GI0	CAPACITOR F/POLYESTR 0.1uF K 250V 9.5x11 TL
C212	CFMT-S104K-GI0	CAPACITOR F/POLYESTR 0.1uF K 250V 9.5x11 TL
C213	CFMT-S104K-GI0	CAPACITOR F/POLYESTR 0.1uF K 250V 9.5x11 TL
C214	CFMT-S104K-GI0	CAPACITOR F/POLYESTR 0.1uF K 250V 9.5x11 TL
C215	CFMT-S104K-GI0	CAPACITOR F/POLYESTR 0.1uF K 250V 9.5x11 TL
C216	CEEZ-L104M-SV3	CAPACITOR E/ALUMINUM 10000uF M 63V 35x50 SMH
C217	CEEZ-L104M-SV3	CAPACITOR E/ALUMINUM 10000uF M 63V 35x50 SMH
C218	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C219	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C220	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
C221	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
C222	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
C223	CFMT-N473J-GK0	CAPACITOR F/POLYESTR 0.047uF J 100V 8.9x13. T
	CEET-F220M-CI0	CAPACITOR E/ALUMINUM 22uF M 25V 5x11 T
D101	DDMR-00230-T10	DIODE-RECTIFIER GP60-04F(400V 6A)
D102	DDMR-00230-T10	DIODE-RECTIFIER GP60-04F(400V 6A)
D103	DDMR-00230-T10	DIODE-RECTIFIER GP60-04F(400V 6A)
D104	DDMR-00230-T10	DIODE-RECTIFIER GP60-04F(400V 6A)
D105	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D106	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D107	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D108	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D109	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D110	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D113	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D114	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D115	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D116	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D117	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D118	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D119	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D120	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D121	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D122	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D125	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D126	DDTR-00040-T10	DIODE-RECTIFIER 1N4004S(400V 1A 0.6mm) T
D124	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D111	DDTZ-G150C-SO0	DIODE ZENER MTZ15C 14.35-15.09 DO40 T
D112	DDTZ-G180C-SO0	DIODE ZENER MTZ18C 17.42-18.33 DO40 T
RL101	ESRY-00340-112	RELAY SDT-S-112DMR
RL102	ESRY-00370-24U	RELAY OSA-SS-224DM3(24V DC)
RL103	ESRY-00370-24U	RELAY OSA-SS-224DM3(24V DC)
IC102	ICDG-00260-S10	IC FUNCTION SELECTOR LC7821 DIP30S
IC107	ICOP-00131-SE0	IC DUAL OP AMP KA4558C DIP8

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
IC101	ICOP-00432-SG0	IC OP AMP	NJM2068DD DIP8
IC103	ICOP-00432-SG0	IC OP AMP	NJM2068DD DIP8
IC108	ICPC-00010-TB0	IC PHOTOCOUPLER	LTV817B DIP4
IC109	ICRG-00043-SE0	IC REGULATOR	KA7805 5V 3mm TO-220
IC110	ICRG-00043-SE0	IC REGULATOR	KA7805 5V 3mm TO-220
IC111	ICRG-00061-SE0	IC REGULATOR	KA7815 15V 3mm TO-220
IC112	ICRG-00251-SE0	IC REGULATOR	KA7915 15V 3mm TO-220
L101	KI0T-4470K-003	COIL-INDUCTOR	47uH K LAL02 T
L102	KI0T-4470K-003	COIL-INDUCTOR	47uH K LAL02 T
CN107	KNCW-00140-ATM	CONNECTOR-WAFER	5267-10A 2.5mm MILK
CN106	KNCW-00140-3TM	CONNECTOR-WAFER	5267-03A 2.5mm MILK
CN105	KNCW-00140-6TM	CONNECTOR-WAFER	5267-06A 2.5mm MILK
CN113	KNCW-00140-7TM	CONNECTOR-WAFER	5267-07A 2.5mm MILK
CN109	KNCW-00240-AT9	CONNECTOR-WAFER	53014-10 2.0mm WHT
CN108	KNCW-00240-4T9	CONNECTOR-WAFER	53014-04 2.0mm WHT
CN115	KNCW-00823-KT9	CONNECTOR WAFER	6216-20PST
CN111	KNCW-00970-2T9	CONNECTOR-WAFER	JE202-1T-2P
CN112	KNCW-00970-2T9	CONNECTOR-WAFER	JE202-1T-2P
CN104	KNCW-00970-3T9	CONNECTOR-WAFER	JE202-1T-3P
CN101	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
CN102	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
CN103	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
CN114	KNCW-01520-ES9	CONNECTOR-WAFER	35336-1410 20MM 14P
	MEAC-08215-004	RADIATOR-TR	
	MEAC-12693-004	HEAT-SINK(TR)	
GT101	MPAC-03810-004	TERMINAL-GND	ET-HD T0.3
GT102	MPAC-03810-004	TERMINAL-GND	ET-HD T0.3
GT103	MPAC-03810-004	TERMINAL-GND	ET-HD T0.3
FC101	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC102	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC103	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC104	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC107	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC108	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC109	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC110	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC111	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC112	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
PCB1	PCSR-05390-11B	PCB-SINGLE	A1R-539 330x247x1.6t
PT101	PTA1-03680-CJU	TRANSFORMER-POWER	A28-368C-U
R226	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R101	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R102	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R138	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R139	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R140	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R153	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R154	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R240	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R239	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R119	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK MAIN PCB	
R120	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R121	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R122	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R131	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R132	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R137	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R145	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R146	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R203	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R204	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R207	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R208	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R213	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R214	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R221	RCFT-E123J-000	RESISTOR-CARBON FILM 12Kohm 1/5W 5% T
R215	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R216	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R209	RCFT-E202J-000	RESISTOR-CARBON FILM 2Kohm 1/5W 5% T
R210	RCFT-E202J-000	RESISTOR-CARBON FILM 2Kohm 1/5W 5% T
R115	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R116	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R117	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R118	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R133	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R134	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R135	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R136	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R155	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R156	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R217	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R218	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R211	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R212	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R230	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R232	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R243	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R244	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R151	RCFT-E224J-000	RESISTOR-CARBON FILM 220Kohm 1/5W 5% T
R152	RCFT-E224J-000	RESISTOR-CARBON FILM 220Kohm 1/5W 5% T
R225	RCFT-E271J-000	RESISTOR-CARBON FILM 270ohm 1/5W 5% T
R235	RCFT-E3R3J-000	RESISTOR-CARBON FILM 3.3ohm 1/5W 5% T
R236	RCFT-E3R3J-000	RESISTOR-CARBON FILM 3.3ohm 1/5W 5% T
R222	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R223	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R224	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R227	RCFT-E392J-000	RESISTOR-CARBON FILM 3.9Kohm 1/5W 5% T
R248	RCFT-E4R7J-000	RESISTOR-CARBON FILM 4.7ohm 1/5W 5% T
R228	RCFT-E470J-000	RESISTOR-CARBON FILM 47ohm 1/5W 5% T
R103	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R104	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R105	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK MAIN PCB	
R106	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R107	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R108	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R109	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R110	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R111	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R112	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R113	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R114	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R129	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R130	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R143	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R144	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R205	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R206	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R127	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R128	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R141	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R142	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R229	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R125	RCFT-E564J-000	RESISTOR-CARBON FILM 560Kohm 1/5W 5% T
R126	RCFT-E564J-000	RESISTOR-CARBON FILM 560Kohm 1/5W 5% T
R123	RCFT-E751J-000	RESISTOR-CARBON FILM 750ohm 1/5W 5% T
R124	RCFT-E751J-000	RESISTOR-CARBON FILM 750ohm 1/5W 5% T
R231	RCFT-E823J-000	RESISTOR-CARBON FILM 82Kohm 1/5W 5% T
R245	RCFT-E823J-000	RESISTOR-CARBON FILM 82Kohm 1/5W 5% T
R246	RCFT-E823J-000	RESISTOR-CARBON FILM 82Kohm 1/5W 5% T
R237	RCFT-F4R7J-010	RESISTOR-CARBON FILM 4.7ohm 1/4W 5% T
R238	RCFT-F4R7J-010	RESISTOR-CARBON FILM 4.7ohm 1/4W 5% T
R247	RCFT-F4R7J-010	RESISTOR-CARBON FILM 4.7ohm 1/4W 5% T
R234	RCFT-G335K-1D0	RESISTOR-CARBON FILM 3.3Mohm 1/2W ERC12UGK335
R253	RMOH-H100J-100	RESISTOR-METAL OXIDE PRO1 1W 10ohm 5% R-SHAP
R233	RMOH-H4R7J-100	RESISTOR-METAL OXIDE PRO1 1W 4.7ohm J R-SHAPE
R241	RMOH-H4R7J-100	RESISTOR-METAL OXIDE PRO1 1W 4.7ohm J R-SHAPE
R242	RMOH-H4R7J-100	RESISTOR-METAL OXIDE PRO1 1W 4.7ohm J R-SHAPE
R249	RMOH-J100J-040	RESISTOR-METAL OXIDE 10ohm 2W 5% H
R250	RMOH-J100J-040	RESISTOR-METAL OXIDE 10ohm 2W 5% H
R251	RMOH-J100J-040	RESISTOR-METAL OXIDE 10ohm 2W 5% H
R252	RMOH-J100J-040	RESISTOR-METAL OXIDE 10ohm 2W 5% H
A0101	SKAO-00190-C50	AC OUTLET S2-764T-214
JK105	SKPH-00520-360	MINIATURE JACK HSJ1002-01-1020
JK101	SKRC-00290-020	SOCKET-RCA JK0200440N 2P
JK102	SKRC-00420-061	SOCKET-RCA JK0600460N
JK103	SKRC-00420-061	SOCKET-RCA JK0600460N
JK104	SKRC-00760-060	SOCKET-RCA JK0600467N
TE101	TESP-00230-08S	TERMINAL SPEAKER SH0810360P
Q102	TRTA-0012Y-SD0	TRANSISTOR P-H FREQ KTA1273-Y TO92L
Q106	TRTA-00940-SD0	TRANSISTOR P-H FREQ KRA107M W/RESIST TO92M
Q109	TRTA-00940-SD0	TRANSISTOR P-H FREQ KRA107M W/RESIST TO92M
	TRTC-01700-SD0	TRANSISTOR N-H FREQ KRC107M W/RESIST TO92M
Q101	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92

Ref. No.	Part No.	Description
	BLOCK MAIN PCB	
Q103	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
Q104	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
Q107	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
Q108	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
Q111	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
	BLOCK FRONT PCB	
C302	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C305	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C306	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C308	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C314	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C315	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C503	CCAT-J330J-AAZ	CAPACITOR CERAMIC 33PF J 50V SL T
C504	CCAT-J330J-AAZ	CAPACITOR CERAMIC 33PF J 50V SL T
C317	CCAT-J470J-AAZ	CAPACITOR CERAMIC 47PF J 50V SL T
C501	CCAT-J470J-AAZ	CAPACITOR CERAMIC 47PF J 50V SL T
C502	CCAT-J470J-AAZ	CAPACITOR CERAMIC 47PF J 50V SL T
C311	CCAT-J473Z-AAF	CAPACITOR CERAMIC 0.047uF Z 50V F T
C312	CCAT-J473Z-AAF	CAPACITOR CERAMIC 0.047uF Z 50V F T
C307	CCCT-J103Z-0DF	CAPACITOR CERAMIC 0.01uF Z 50V F T
C413	CCTT-J120J-0BC	CAPACITOR CERAMIC 12PF J 50V CH T
C414	CCTT-J120J-0BC	CAPACITOR CERAMIC 12PF J 50V CH T
C419	CCTT-J470J-0DC	CAPACITOR CERAMIC 47PF J 50V CH T
C420	CCTT-J470J-0DC	CAPACITOR CERAMIC 47PF J 50V CH T
C403	CCTT-J680J-0FC	CAPACITOR CERAMIC 68PF J 50V CH T
C404	CCTT-J680J-0FC	CAPACITOR CERAMIC 68PF J 50V CH T
C409	CCTT-J681J-0BZ	CAPACITOR CERAMIC 680PF J 50V SL T
C410	CCTT-J681J-0BZ	CAPACITOR CERAMIC 680PF J 50V SL T
C411	CEET-C471M-FI1	CAPACITOR E/ALUMINUM 470uF M 6.3V 8x11.5 U T
C412	CEET-C471M-FI1	CAPACITOR E/ALUMINUM 470uF M 6.3V 8x11.5 U T
C428	CEET-C471M-FI1	CAPACITOR E/ALUMINUM 470uF M 6.3V 8x11.5 U T
C401	CEET-F220M-CI0	CAPACITOR E/ALUMINUM 22uF M 25V 5x11 T
C402	CEET-F220M-CI0	CAPACITOR E/ALUMINUM 22uF M 25V 5x11 T
C407	CEET-F220M-CI0	CAPACITOR E/ALUMINUM 22uF M 25V 5x11 T
C408	CEET-F220M-CI0	CAPACITOR E/ALUMINUM 22uF M 25V 5x11 T
C405	CEET-F330M-CI0	CAPACITOR E/ALUMINUM 33uF M 25V 5x11 T
C406	CEET-F330M-CI0	CAPACITOR E/ALUMINUM 33uF M 25V 5x11 T
C304	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C316	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C509	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C510	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C303	CEET-JR10M-CI0	CAPACITOR E/ALUMINUM 0.1uF M 50V 5x11 T
C310	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C427	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C309	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C421	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C422	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C425	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C426	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C505	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T

Ref. No.	Part No.	Description
	BLOCK FRONT PCB	
C506	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C507	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C508	CEET-J100M-CI0	CAPACITOR E/ALUMINUM 10uF M 50V 5x11 T
C423	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C424	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C313	CEET-J470M-DI0	CAPACITOR E/ALUMINUM 47uF M 50V 6.3x11 T
C415	CEET-L331M-DI1	CAPACITOR E/ALUMINUM 330uF M 63V 10x20 SHL T
C416	CEET-L331M-DI1	CAPACITOR E/ALUMINUM 330uF M 63V 10x20 SHL T
C417	CEET-L331M-DI1	CAPACITOR E/ALUMINUM 330uF M 63V 10x20 SHL T
C418	CEET-L331M-DI1	CAPACITOR E/ALUMINUM 330uF M 63V 10x20 SHL T
C301	CEGT-B104J-0J0	CAPACITOR E/DO LAYER 0.1F J 5.5V SCDA5R5104A T
C511	CFMT-N183J-EK0	CAPACITOR F/POLYESTR 0.018uF J 100V 7.3x13 T
C512	CFMT-N183J-EK0	CAPACITOR F/POLYESTR 0.018uF J 100V 7.3x13 T
C517	CFMT-N183J-EK0	CAPACITOR F/POLYESTR 0.018uF J 100V 7.3x13 T
C518	CFMT-N183J-EK0	CAPACITOR F/POLYESTR 0.018uF J 100V 7.3x13 T
C515	CFMT-N392J-DJ0	CAPACITOR F/POLYESTR 0.0039uF J 100V 5.8x12 T
C516	CFMT-N392J-DJ0	CAPACITOR F/POLYESTR 0.0039uF J 100V 5.8x12 T
C513	CFMT-N823J-IK0	CAPACITOR F/POLYESTR 0.082uF J 100V 10.6x14 T
C514	CFMT-N823J-IK0	CAPACITOR F/POLYESTR 0.082uF J 100V 10.6x14 T
D301	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D302	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D303	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D304	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D306	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D307	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D308	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D309	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D310	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D311	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D312	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D401	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D402	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D403	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D404	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D405	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D305	DDTZ-G075B-SO0	DIODE ZENER MTZ7.5B 7.07-7.45 D040 T
D406	DDTZ-G091B-SO0	DIODE ZENER MTZ9.1B 9.01 DO40 T
FL301	DPFL-00780-000	VFD HNA-16LL15
LD802	DPLE-00210-YG0	DISPLAY-LED SM3511
LD301	DPLE-00211-GG0	DISPLAY-LED SM3511(F2T)
LD302	DPLE-00211-GG0	DISPLAY-LED SM3511(F2T)
LD303	DPLE-00211-GG0	DISPLAY-LED SM3511(F2T)
LD304	DPLE-00211-GG0	DISPLAY-LED SM3511(F2T)
LD305	DPLE-00211-GG0	DISPLAY-LED SM3511(F2T)
LD306	DPLE-00211-GG0	DISPLAY-LED SM3511(F2T)
LD801	DPLE-00280-RG0	DISPLAY-LED SAM5270 RED/GRN
IC304	ICCM-01500-SB0	IC MEMORY LSI BR24C04-W DIP8
IC302	ICHY-00370-U80	IC REMOTE RECEIVER HI-M602H0
IC301	ICMP-04110-SE0	IC (U-COM) UPD780204GF-084-3BA
IC303	ICOP-00210-SD0	IC RESET KIA7042P/F 4.2V TO-92
IC501	ICOP-03150-SG0	IC OP AMP NJM2068M SOP8

Ref. No.	Part No.	Description	
	BLOCK FRONT PCB		
L302	KIBK-00190-E40	COIL-AUDIO CHOCK	0.7uH COIL-CHOCK
L401	KIBK-00190-E40	COIL-AUDIO CHOCK	0.7uH COIL-CHOCK
CN402	KNCW-00140-2TM	CONNECTOR-WAFER	5267-02A 2.5mm MILK
CN401	KNCW-00140-3TM	CONNECTOR-WAFER	5267-03A 2.5mm MILK
CN302	KNCW-00160-5S9	CONNECTOR-WAFER	53015-0510 2mm-WHT
CN301	KNCW-00823-KS9	CONNECTOR WAFER	6216-20PRA
CN801	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
Z301	KTRE-00171-042	RESONATOR	CST4.19MGW-TF01
	MEAC-08212-004	RADIATOR	
	MRAG-13830-004	CUSHION-FL	EVA T=5.0
	MRAG-13840-004	CUSHION-REMOTE	EVA T=11.0
	PCSR-05400-11B	PCB-SINGLE	A1R-540 330x247x1.6t
R319	RCFT-E100J-000	RESISTOR-CARBON FILM	10ohm 1/5W 5% T
R346	RCFT-E100J-000	RESISTOR-CARBON FILM	10ohm 1/5W 5% T
R317	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R318	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R495	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R304	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R345	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R405	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R406	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R491	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R302	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R305	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R337	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R338	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R339	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R340	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R341	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R342	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R343	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R344	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R488	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R501	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R502	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R511	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R512	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R306	RCFT-E105J-000	RESISTOR-CARBON FILM	1Mohm 1/5W 5% T
R503	RCFT-E105J-000	RESISTOR-CARBON FILM	1Mohm 1/5W 5% T
R504	RCFT-E105J-000	RESISTOR-CARBON FILM	1Mohm 1/5W 5% T
R455	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R456	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R415	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R416	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R417	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R418	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R407	RCFT-E151J-000	RESISTOR-CARBON FILM	150ohm 1/5W 5% T
R408	RCFT-E151J-000	RESISTOR-CARBON FILM	150ohm 1/5W 5% T
R425	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R426	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R471	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK FRONT PCB	
R472	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R490	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R494	RCFT-E153J-000	RESISTOR-CARBON FILM 15Kohm 1/5W 5% T
R320	RCFT-E181J-000	RESISTOR-CARBON FILM 180ohm 1/5W 5% T
R321	RCFT-E181J-000	RESISTOR-CARBON FILM 180ohm 1/5W 5% T
R322	RCFT-E181J-000	RESISTOR-CARBON FILM 180ohm 1/5W 5% T
R323	RCFT-E181J-000	RESISTOR-CARBON FILM 180ohm 1/5W 5% T
R324	RCFT-E181J-000	RESISTOR-CARBON FILM 180ohm 1/5W 5% T
R325	RCFT-E181J-000	RESISTOR-CARBON FILM 180ohm 1/5W 5% T
R469	RCFT-E182J-000	RESISTOR-CARBON FILM 1.8Kohm 1/5W 5% T
R470	RCFT-E182J-000	RESISTOR-CARBON FILM 1.8Kohm 1/5W 5% T
R507	RCFT-E203J-000	RESISTOR-CARBON FILM 20Kohm 1/5W 5% T
R508	RCFT-E203J-000	RESISTOR-CARBON FILM 20Kohm 1/5W 5% T
R519	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R520	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R513	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R514	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R517	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R518	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R301	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R303	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R334	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R335	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R336	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R451	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R452	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R453	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R454	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R493	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R477	RCFT-E243J-000	RESISTOR-CARBON FILM 24Kohm 1/5W 5% T
R478	RCFT-E243J-000	RESISTOR-CARBON FILM 24Kohm 1/5W 5% T
R313	RCFT-E271J-000	RESISTOR-CARBON FILM 270ohm 1/5W 5% T
R315	RCFT-E271J-000	RESISTOR-CARBON FILM 270ohm 1/5W 5% T
R463	RCFT-E3R3J-000	RESISTOR-CARBON FILM 3.3ohm 1/5W 5% T
R464	RCFT-E3R3J-000	RESISTOR-CARBON FILM 3.3ohm 1/5W 5% T
R465	RCFT-E3R3J-000	RESISTOR-CARBON FILM 3.3ohm 1/5W 5% T
R466	RCFT-E3R3J-000	RESISTOR-CARBON FILM 3.3ohm 1/5W 5% T
R401	RCFT-E331J-000	RESISTOR-CARBON FILM 330ohm 1/5W 5% T
R402	RCFT-E331J-000	RESISTOR-CARBON FILM 330ohm 1/5W 5% T
R489	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R316	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R403	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R404	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R427	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R428	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R492	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R496	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R497	RCFT-E333J-000	RESISTOR-CARBON FILM 33Kohm 1/5W 5% T
R479	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R480	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R481	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK FRONT PCB	
R482	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R483	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R484	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R485	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R486	RCFT-E390J-000	RESISTOR-CARBON FILM 39ohm 1/5W 5% T
R509	RCFT-E432J-000	RESISTOR-CARBON FILM 4.3Kohm 1/5W 5% T
R510	RCFT-E432J-000	RESISTOR-CARBON FILM 4.3Kohm 1/5W 5% T
R505	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R506	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R309	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R310	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R311	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R312	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R441	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R442	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R307	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R326	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R327	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R328	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R329	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R331	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R333	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R314	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R429	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R430	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R431	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R432	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R433	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R434	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R435	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R436	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R437	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R438	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R439	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R440	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R473	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R474	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R515	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R516	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R492	RCFT-E563J-000	RESISTOR-CARBON FILM 56Kohm 1/5W 5% T
R409	RCFT-E680J-000	RESISTOR-CARBON FILM 68ohm 1/5W 5% T
R410	RCFT-E680J-000	RESISTOR-CARBON FILM 68ohm 1/5W 5% T
R419	RCFT-E681J-000	RESISTOR-CARBON FILM 680ohm 1/5W 5% T
R420	RCFT-E681J-000	RESISTOR-CARBON FILM 680ohm 1/5W 5% T
R475	RCFT-E682J-000	RESISTOR-CARBON FILM 6.8Kohm 1/5W 5% T
R476	RCFT-E682J-000	RESISTOR-CARBON FILM 6.8Kohm 1/5W 5% T
R487	RCFT-E683J-000	RESISTOR-CARBON FILM 68Kohm 1/5W 5% T
R421	RCFT-E751J-000	RESISTOR-CARBON FILM 750ohm 1/5W 5% T
R422	RCFT-E751J-000	RESISTOR-CARBON FILM 750ohm 1/5W 5% T
R423	RCFT-E751J-000	RESISTOR-CARBON FILM 750ohm 1/5W 5% T
R424	RCFT-E751J-000	RESISTOR-CARBON FILM 750ohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK FRONT PCB	
R443	RCFT-E820J-000	RESISTOR-CARBON FILM 82ohm 1/5W 5% T
R444	RCFT-E820J-000	RESISTOR-CARBON FILM 82ohm 1/5W 5% T
R445	RCFT-E820J-000	RESISTOR-CARBON FILM 82ohm 1/5W 5% T
R446	RCFT-E820J-000	RESISTOR-CARBON FILM 82ohm 1/5W 5% T
R461	RCFT-E820J-000	RESISTOR-CARBON FILM 82ohm 1/5W 5% T
R462	RCFT-E820J-000	RESISTOR-CARBON FILM 82ohm 1/5W 5% T
R457	RCFT-E821J-000	RESISTOR-CARBON FILM 820ohm 1/5W 5% T
R458	RCFT-E821J-000	RESISTOR-CARBON FILM 820ohm 1/5W 5% T
R459	RCFT-E821J-000	RESISTOR-CARBON FILM 820ohm 1/5W 5% T
R460	RCFT-E821J-000	RESISTOR-CARBON FILM 820ohm 1/5W 5% T
	RJWT-00000-AA0	RESISTOR-JUMPER WIRE 60mm-TX123 F 1
R467	RMFT-LR27J-0J0	RESISTOR-METAL PLATE 0.27ohm 5W 5% MPR
R468	RMFT-LR27J-0J0	RESISTOR-METAL PLATE 0.27ohm 5W 5% MPR
R447	RMOH-H470J-100	RESISTOR-METAL OXIDE PRO1 1W 47Ohm 5% R-SHAF
R448	RMOH-H470J-100	RESISTOR-METAL OXIDE PRO1 1W 47Ohm 5% R-SHAF
R449	RMOH-H470J-100	RESISTOR-METAL OXIDE PRO1 1W 47Ohm 5% R-SHAF
R450	RMOH-H470J-100	RESISTOR-METAL OXIDE PRO1 1W 47Ohm 5% R-SHAF
R801	RMOH-J221J-040	RESISTOR-METAL OXIDE 220ohm 2W 5% H
R802	RMOH-J221J-040	RESISTOR-METAL OXIDE 220ohm 2W 5% H
SW801	SWPU-00591-059	SWITCH-PUSH SDDLB13300
SW301	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW302	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW303	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW304	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW305	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW306	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW307	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW308	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW309	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW310	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW311	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW312	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW313	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW314	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW315	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW316	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW317	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW318	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
SW802	SWTA-00220-060	SWITCH-TACT THVV 502G AA 12V 50mA
Q423	TRSA-01450-SJ0	TRANSISTOR N-H FREQ 2SA1859A
Q424	TRSA-01450-SJ0	TRANSISTOR N-H FREQ 2SA1859A
Q421	TRSC-01540-SJ0	TRANSISTOR N-H FREQ 2SC4883A
Q422	TRSC-01540-SJ0	TRANSISTOR N-H FREQ 2SC4883A
Q401	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q402	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q403	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q404	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q405	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q406	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q407	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92
Q408	TRTA-0011G-SD0	TRANSISTOR P-H FREQ KTA1268-GR TO92

Ref. No.	Part No.	Description		
	BLOCK FRONT PCB			
Q413	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q414	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q431	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q415	TRTA-0013Y-SD0	TRANSISTOR N-H FREQ	KTA1024-Y	
Q416	TRTA-0013Y-SD0	TRANSISTOR N-H FREQ	KTA1024-Y	
Q409	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q410	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q411	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q412	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q429	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q430	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q301	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q432	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q433	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q434	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q417	TRTC-0087Y-SD0	TRANSISTOR N-H FREQ	KTC3206-Y	TO92L
Q418	TRTC-0087Y-SD0	TRANSISTOR N-H FREQ	KTC3206-Y	TO92L
Q302	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q303	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q304	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q305	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q306	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q435	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
	UA10-9M412-200	WIRE-ASS'Y	1007#20 WHT-120 10P	
	UM08-A1033-000	WIRE-ASS'Y	1533#28/1007#26-150 10P	
	UM08-41035-000	WIRE-ASS'Y	1533#28-180 4P	
	U1T1-0GN20-T10	WIRE-ASS'Y	HIGH WRAP#22 BLK 200	
	U208-2K815-000	WIRE-ASS'Y	20080#28 RED-150 2P	
	U245-91327-450	WIRE-ASS'Y	1007#18-270 2P	
	U508-4M716-200	WIRE-ASS'Y	1007#26 YEL-160 5P	
	U710-6M742-200	WIRE-ASS'Y	1007#26 BLU-420	
VR503	VRAE-P049W-104	VR-ROTARY	RK11K1160106-100KW	
VR501	VRAE-P050C-104	VR-ROTARY	RK14K1260106-100KCx2	
VR502	VRAE-P050C-104	VR-ROTARY	RK14K1260106-100KCx2	
	BLOCK TUNER PCB			
CF602	BTCE-00040-107	FILTER-CERAMIC	SFE10.7MS2-A-TF21	
CF603	BTCE-00040-107	FILTER-CERAMIC	SFE10.7MS2-A-TF21	
CF604	BTCE-00450-045	FILTER-CERAMIC	AHCFM2-450AL	
C707	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C708	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C709	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C710	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C706	CCAT-F223Z-AAF	CAPACITOR CERAMIC	0.022uF Z 25V F T	
C620	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C621	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C626	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C627	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C628	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C629	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C640	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T	

Ref. No.	Part No.	Description
	BLOCK TUNER PCB	
C641	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C642	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C803	CCAT-J104Z-AAF	CAPACITOR CERAMIC 0.1uF Z 50V F T
C669	CCAT-J473Z-AAF	CAPACITOR CERAMIC 0.047uF Z 50V F T
C711	CCAT-J473Z-AAF	CAPACITOR CERAMIC 0.047uF Z 50V F T
C703	CCAT-J560J-AAZ	CAPACITOR CERAMIC 56PF J 50V SL T
C704	CCAT-J560J-AAZ	CAPACITOR CERAMIC 56PF J 50V SL T
C652	CCAT-J561K-AAB	CAPACITOR CERAMIC 560PF K 50V B T
C665	CCAT-J561K-AAB	CAPACITOR CERAMIC 560PF K 50V B T
C666	CCAT-J680J-AAZ	CAPACITOR CERAMIC 68PF J 50V SL T
C667	CCAT-J680J-AAZ	CAPACITOR CERAMIC 68PF J 50V SL T
C613	CCCT-J103Z-0DF	CAPACITOR CERAMIC 0.01uF Z 50V F T
C623	CCCT-J103Z-0DF	CAPACITOR CERAMIC 0.01uF Z 50V F T
C801	CCCT-J222K-0DB	CAPACITOR CERAMIC 2200PF K 50V B T
C802	CCCT-J222K-0DB	CAPACITOR CERAMIC 2200PF K 50V B T
C602	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C605	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C606	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C608	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C609	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C610	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C611	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C614	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C615	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C616	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C636	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C639	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C661	CCCT-J223Z-0FF	CAPACITOR CERAMIC 0.022uF Z 50V F T
C603	CCCT-J473Z-0JF	CAPACITOR CERAMIC 0.047uF Z 50V F T
C619	CCCT-J473Z-0JF	CAPACITOR CERAMIC 0.047uF Z 50V F T
C604	CCTT-J150J-0BC	CAPACITOR CERAMIC 15PF J 50V CH T
C625	CCTT-J300J-0CC	CAPACITOR CERAMIC 30PF J 50V CH T
C634	CCTT-J331J-0FZ	CAPACITOR CERAMIC 330PF J 50V SL T
C624	CCTT-J390J-0DC	CAPACITOR CERAMIC 39PF J 50V CH T
C651	CCTT-J681J-0BZ	CAPACITOR CERAMIC 680PF J 50V SL T
C645	CEET-E101M-DI0	CAPACITOR E/ALUMINUM 100uF M 16V 6.3x11 T
C705	CEET-E101M-DI0	CAPACITOR E/ALUMINUM 100uF M 16V 6.3x11 T
C601	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C612	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C618	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C622	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C638	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C701	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C702	CEET-F470M-CI0	CAPACITOR E/ALUMINUM 47uF M 25V 5x11 T
C607	CEET-G100M-CI0	CAPACITOR E/ALUMINUM 10uF M 35V 5x11 T
C647	CEET-G100M-CI0	CAPACITOR E/ALUMINUM 10uF M 35V 5x11 T
C648	CEET-G100M-CI0	CAPACITOR E/ALUMINUM 10uF M 35V 5x11 T
C664	CEET-G100M-CI0	CAPACITOR E/ALUMINUM 10uF M 35V 5x11 T
C663	CEET-JR22M-CI0	CAPACITOR E/ALUMINUM 0.22uF M 50V 5x11 T
C630	CEET-JR47M-CI0	CAPACITOR E/ALUMINUM 0.47uF M 50V 5x11 T
C632	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T

Ref. No.	Part No.	Description
	BLOCK TUNER PCB	
C644	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C662	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM 1.0uF M 50V 5x11 T
C633	CEET-J3R3M-CI0	CAPACITOR E/ALUMINUM 3.3uF M 50V 5x11 T
C617	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C631	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C643	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C650	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C668	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM 4.7uF M 50V 5x11 T
C670	CFMT-N223J-EK0	CAPACITOR F/POLYESTR 0.022uF J 100V 7.4x13 T
C637	CFMT-N332J-DJ0	CAPACITOR F/POLYESTR 0.0033uF J 100V 5.8x12 T
C646	CFMT-N393J-FK0	CAPACITOR F/POLYESTR 0.039uF J 100V 8.5x13. T
C671	CFST-O471J-CJ0	CAPACITOR F/STYROL 470PF J 125V 5.5x12 T
VD601	DDSV-00120-S10	DIODE-VVC SVC321SPA-C2 AM8V DO40S
VD602	DDSV-00120-S10	DIODE-VVC SVC321SPA-C2 AM8V DO40S
D601	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D801	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
D802	DDTS-00070-SO0	DIODE-SI 1SS133 (40V 0.11A) DO-40 T
ZD601	DDTZ-G051B-SOS	DIODE ZENER MTZJ5.1B 4.94-5.20 DO34 T
D701	DDTZ-G062B-SOS	DIODE ZENER MTZJ6.2B 5.96-6.27 DO34 T
IC701	ICDG-00560-SO0	IC MOTOR DRIVER BA6208 SIP9
IC603	ICLN-03610-S10	IC PLL FM MPX LA3401 DIP22
IC604	ICLN-03620-S10	IC AM/FM IF LA1266 DIP24
IC602	ICLN-03680-S10	IC PLL LC7218JM SOP-24
T606	IFFA-00110-E20	IFT-FM AFA011 7mm-CAN
T604	IFFD-00100-E20	IFT-FM DET AFD010 7mm-CAN
T605	KIAA-00260-E20	COIL-AM IFT AAA-026 7MC-K502713N4-KR
T603	KIAO-00460-E20	COIL-AM OSC AAO046 MW 7mm - CAN
T607	KIAT-00530-E20	COIL-AM ANT AAT053 MW 7mm - CAN
T601	KIML-A0010-E20	COIL-FM MPX FILTER AMA001 19KHz 10mm-CAN
T602	KIML-A0010-E20	COIL-FM MPX FILTER AMA001 19KHz 10mm-CAN
CN702	KNCW-00160-5S9	CONNECTOR-WAFER 53015-0510 2mm-WHT
CN701	KNCW-00240-AT9	CONNECTOR-WAFER 53014-10 2.0mm WHT
CW701	KNCW-00240-AT9	CONNECTOR-WAFER 53014-10 2.0mm WHT
CN703	KNCW-00240-2T9	CONNECTOR-WAFER 53014-02 2.0mm WHT
CW802	KNCW-00240-2T9	CONNECTOR-WAFER 53014-02 2.0mm WHT
TP601	KNCW-01490-2T9	CONNECTOR-WAFER JE115-AT-02P
TP602	KNCW-01490-2T9	CONNECTOR-WAFER JE115-AT-02P
TP603	KNCW-01490-2T9	CONNECTOR-WAFER JE115-AT-02P
CH602	KNCW-01510-ES9	CONNECTOR-WAFER 35237-1410 2M/M 14P
X601	KTAL-00041-072	CRYSTAL HC-49/U 7.200000MHz
CF605	KTRE-00300-288	RESONATOR ZTB456F11
R655	PCSR-01440-31B	PCB-SINGLE A3R-144 247x197x1.6t
R613	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R629	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R634	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R639	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R648	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R651	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R673	RCFT-E101J-000	RESISTOR-CARBON FILM 100ohm 1/5W 5% T
R603	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R611	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK TUNER PCB	
R618	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R636	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R637	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R638	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R654	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R658	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R703	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R704	RCFT-E102J-000	RESISTOR-CARBON FILM 1Kohm 1/5W 5% T
R620	RCFT-E103J-000	RESISTOR-CARBON FILM 10Kohm 1/5W 5% T
R622	RCFT-E103J-000	RESISTOR-CARBON FILM 10Kohm 1/5W 5% T
R625	RCFT-E103J-000	RESISTOR-CARBON FILM 10Kohm 1/5W 5% T
R640	RCFT-E103J-000	RESISTOR-CARBON FILM 10Kohm 1/5W 5% T
R643	RCFT-E103J-000	RESISTOR-CARBON FILM 10Kohm 1/5W 5% T
R604	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R605	RCFT-E104J-000	RESISTOR-CARBON FILM 100Kohm 1/5W 5% T
R612	RCFT-E122J-000	RESISTOR-CARBON FILM 1.2Kohm 1/5W 5% T
R675	RCFT-E124J-000	RESISTOR-CARBON FILM 120Kohm 1/5W 5% T
R677	RCFT-E124J-000	RESISTOR-CARBON FILM 120Kohm 1/5W 5% T
R653	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R671	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R803	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R804	RCFT-E152J-000	RESISTOR-CARBON FILM 1.5Kohm 1/5W 5% T
R628	RCFT-E182J-000	RESISTOR-CARBON FILM 1.8Kohm 1/5W 5% T
R676	RCFT-E184J-000	RESISTOR-CARBON FILM 180Kohm 1/5W 5% T
R678	RCFT-E184J-000	RESISTOR-CARBON FILM 180Kohm 1/5W 5% T
R626	RCFT-E220J-000	RESISTOR-CARBON FILM 22ohm 1/5W 5% T
R630	RCFT-E220J-000	RESISTOR-CARBON FILM 22ohm 1/5W 5% T
R615	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R616	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R679	RCFT-E221J-000	RESISTOR-CARBON FILM 220ohm 1/5W 5% T
R614	RCFT-E222J-000	RESISTOR-CARBON FILM 2.2Kohm 1/5W 5% T
R642	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R650	RCFT-E223J-000	RESISTOR-CARBON FILM 22Kohm 1/5W 5% T
R619	RCFT-E271J-000	RESISTOR-CARBON FILM 270ohm 1/5W 5% T
R705	RCFT-E271J-000	RESISTOR-CARBON FILM 270ohm 1/5W 5% T
R627	RCFT-E273J-000	RESISTOR-CARBON FILM 27Kohm 1/5W 5% T
R607	RCFT-E331J-000	RESISTOR-CARBON FILM 330ohm 1/5W 5% T
R608	RCFT-E331J-000	RESISTOR-CARBON FILM 330ohm 1/5W 5% T
R609	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R635	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R652	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R672	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R674	RCFT-E332J-000	RESISTOR-CARBON FILM 3.3Kohm 1/5W 5% T
R606	RCFT-E4R7J-000	RESISTOR-CARBON FILM 4.7ohm 1/5W 5% T
R621	RCFT-E471J-000	RESISTOR-CARBON FILM 470ohm 1/5W 5% T
R623	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R631	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R632	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R633	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R646	RCFT-E472J-000	RESISTOR-CARBON FILM 4.7Kohm 1/5W 5% T
R624	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T

Ref. No.	Part No.	Description
	BLOCK TUNER PCB	
R647	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R649	RCFT-E473J-000	RESISTOR-CARBON FILM 47Kohm 1/5W 5% T
R610	RCFT-E561J-000	RESISTOR-CARBON FILM 560ohm 1/5W 5% T
R644	RCFT-E622J-000	RESISTOR-CARBON FILM 6.2Kohm 1/5W 5% T
R617	RCFT-E683J-000	RESISTOR-CARBON FILM 68Kohm 1/5W 5% T
R702	RCFT-E821J-000	RESISTOR-CARBON FILM 820ohm 1/5W 5% T
R645	RCFT-E823J-000	RESISTOR-CARBON FILM 82Kohm 1/5W 5% T
R655	RCFT-G471J-190	RESISTOR-CARBON FILM 470ohm 1/2W 5% 2.3x6.5 T
	RJWT-00000-AA0	RESISTOR-JUMPER WIRE 60mm-TX123 F
R701	RMOH-H820J-100	MOR PRO1 1W 82ohm 5% R-SHAP
JK801	SKPH-00293-66W	SOCKET-PHONE HTJ064-05BG GOLD
ANT601	TEAT-00143-02S	TERMINAL ANTENNA SC021039FN
Q602	TRTA-00940-SD0	TRANSISTOR P-H FREQ KRA107M W/RESIST TO92M
Q604	TRTA-00940-SD0	TRANSISTOR P-H FREQ KRA107M W/RESIST TO92M
Q606	TRTA-00940-SD0	TRANSISTOR P-H FREQ KRA107M W/RESIST TO92M
Q609	TRTA-00940-SD0	TRANSISTOR P-H FREQ KRA107M W/RESIST TO92M
Q601	TRTC-0010Y-SD0	TRANSISTOR N-H FREQ KTC3194-Y TO92
Q607	TRTC-0016G-SD0	TRANSISTOR N-H FREQ KTC3198-GR TO92
Q608	TRTC-0016G-SD0	TRANSISTOR N-H FREQ KTC3198-GR TO92
Q610	TRTC-0016G-SD0	TRANSISTOR N-H FREQ KTC3198-GR TO92
Q701	TRTC-01060-SD0	TRANSISTOR N-H FREQ KTC3203 TO92
Q702	TRTC-01700-SD0	TRANSISTOR N-H FREQ KRC107M W/RESIST TO92M
Q603	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
Q605	TRTD-00200-SD0	TRANSISTOR N-L FREQ KTD-1302 TO92
FE601	TUFF-00232-00K	FM F/E TUNER FTA3-509HA
	UM08-A1034-000	WIRE-ASS'Y 1533#28/1007#26-200 10P
	U310-2M530-200	WIRE-ASS'Y 1007#22 RED-300 3P
CT601	VCTC-00022-200	TRIMMER CVCN06C200
VR602	VFEB-A021B-224	RESISTOR-SEMI FIXED RH0638C-220KB 220Kohm
VR603	VFEB-A021B-472	RESISTOR-SEMI FIXED RH0638C-4.7KB 4.7Kohm
VR601	VFEB-A021B-473	RESISTOR-SEMI FIXED RH0638C-47KB 47Kohm
MV701	VWBD-E017A-503	VR-W/MOTOR RK16812MG-50KAx2

TUNER COMPLETE PCB ASS'Y - PART# TUNERHK3370/3470

hk3475 Parts List

Ref. No.	Part Number	Description	
	BLOCK SUB		
	ZBNG-00700-4ZL	BOND-ADHESIVE	#575
	ZBNG-01300-5ZL	LOCKER-SCREW	#1401B
#	ZGSI-01000-9PN	GREASE-SILICON	G-746
	ZSBR-00010-060	SOLDER-BAR	SN60
#	ZSWR-00010-F60	SOLDER-WIRE	D1.0 SN60
#	ZTOP-00701-50C	TAPE-OPP	
	ZTWF-01200-039	TAPE-DOUBLE FACE	TESA 4968 W = 3.0 t=0.32
#	ZZFX-00010-000	FLUX	ROSIN 28
	ZZTH-00010-000	DILUENT	ROSIN
	BLOCKMECHA		
	ACRC-00680-000	ASS'Y-REMOCON	HK3470RC (U. S. A £'
	ANTL-00060-E50	ANTENNA-LOOP	AAN-007 19.5uH 7T 125x93
	ANTT-00054-075	ANTENNA-T TYPE	75ohm W/TER(Y)-1200m/m
	BAMN-00010-150	BATTERY MANGANESE	R03(AAAM) 1.5V 10.5x44.5
	FGFB-O2002-831	FUSE GLASS	2A 125V 51S
	FGFB-O3151-831	FUSE GLASS	315mA 125V 5x20 U/C SB
	FGFB-O8002-331	FUSE GLASS	8A 125V 5x20 U/C SB
	KDAC-0575D-H00	CORD-AC	KKP-10W WITH CORE
	LLA3-20401-E10	CARD CABLE	1.25x20Px360xCx(0.1x0.8)
	MAAF-03600-022	WINDOW-FL	HK3470RDS ACRYL T=3.0 (I
	MAAF-16130-014	LENS-VOLUME	HK3370 PMMA(IF-850)
	MAAF-16990-014	LENS-POWER	HK3370 ACRYL
	MAAF-17040-014	FILTER-FL	HK3370 PVC T0.5
	MAAF-17070-004	SHEET-WINDOW	PE(DRAFTING FILM)
	MEAC-05060-002	RADIATOR-MAIN	A6063 T-5+AL
	MJAF-03580-012	KNOB-FUNCTION	HK3370 ABS
	MJAF-06570-011	PANEL-FRONT	HK3370 ABS
	MJAF-08870-013	KNOB-CHOICE	HK3370 ABS
	MJAF-08880-013	DECO-CHOICE	HK3370 ABS
	MJAF-15640-014	FOOT(A)	AVR200
	MJAF-16050-024	KNOB-STANDBY	HK3470RDS ABS-720
	MJAF-16070-024	KNOB-BALANCE	HK3470RDS ABS-720
	MJAF-16100-024	KNOB-VOLUME	HK3470RDS ABS-720
	MJAF-16140-004	SUPPORT-PCB	ABS-720
	MJAF-16980-014	KNOB-POWER	HK3370 ABS
	MJAF-17030-004	GUIDE-LED	ABS
	MJAG-00280-003	CORD-BUSH	NIFCO
	MJAG-04540-004	CABLE-TIE-L80	*
	MLAG-13850-014	BADGE-H/K	HK3370 AL
	MMAC-12060-004	TERMINAL-GND	
	MMAC-15650-004	SCREW-RADIATOR	
	MMAC-16400-004	SCREW-T/P-TOOTH	3X10 BLACK
	MMAC-17070-004	JACK-CONNECT	
	MMSC-00900-004	AIR-STAPLER	
	MMTC-00751-003	SCREW-TAPPING	BHW T2T 3x8 FE-ZY
	MPAC-04812-002	CHASSIS-BOTTOM	US COATING T1.2
	MPAC-04950-012	CHASSIS-TOP	AVR200 SECC(T0.6) + P
	MPAC-05040-022	CHASSIS-BACK	HK3470 SECC T0.8
	MPAC-16220-004	BRACKET-RADIATOR(S)	US COATING T1.0
	MPAC-16880-004	SHIELD-BALANCE	ET-HD T0.5
	MRAG-13040-004	CUSHION-A	FELT 437x10x0.5 S
	MRAG-13050-004	CUSHION-A	FELT 250x10x0.5 S
	MRAG-13250-004	CUSHION-A	EVA T=5.0
	MRAG-13930-004	TRANSISTOR-MICA	MICA

Ref. No.	Part No.	Description	
	BLOCK MECHA		
	MWAW-00910-003	PALLETS	1040X1126X141
	PLRC-00020-S30	PLUG RCA	SHORT JACK
	PTAP-03770-CJU	TRANSFORMER-POWER	A96-377C-U,AC120V 60Hz
	TFMA-00100-D00	TRANSFORMER-MATCHING	MT115050 300ohm & 75ohm
	TRSA-01770-SD0	TRANSISTOR P-H FREQ	2SA1943
	TRSA-01780-SD0	TRANSISTOR N-H FREQ	2SC5200
Q209	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q224	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q239	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q254	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
Q269	TRSC-01680-SB0	TRANSISTOR N-H FREQ	2SC4137 TO-126FP
	U348-9B350-480	WIRE-ASS'Y	1618#18-500 WHT 3P
	VSPO-00010-100	POSISTOR	P42T8D100BW23
	XSTB-30080-ZB4	SCREW-TAPPING	BHT2T 3x8 FE-ZB
	XSTB-30080-ZY4	SCREW-TAPPING	BHT2T 3x8 FE-ZY
	XSTB-30100-ZB4	SCREW-TAPPING	BHT2T 3x10 FE-ZB
	XSTB-30100-ZY4	SCREW-TAPPING	BHT2T 3x10 FE-ZY
	XSTB-40080-ZB8	SCREW-TAPPING	BHT3T 4x8 FE-ZB
	XSTB-40080-ZY8	SCREW-TAPPING	BHT3T 4x8 FE-ZY
	XSTS-30080-ZY4	SCREW-TAPPING	PHWT2T 3x8 FE-ZY
	XSTS-30180-ZY4	SCREW-TAPPING	PHWT2T 3x18 FE-ZY
	YGAP-14860-064	BOX-GIFT	HK3470 535X480X231 DW
	YSAP-12070-002	CUSHION-L/R	EPS
	YVAP-01862-004	POLY-BAG-F	*
	YVAP-13320-004	TOLON-SHEET	750x1200 0.5t
	7JJG-00212-001	PACKING WRAP	500mm*1400m
	BLOCK MAIN PCB		
C184	CACS-S472M-179	CAPACITOR AC	DE7100F472M
C134	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T
C191	CCAT-F223Z-AAF	CAPACITOR CERAMIC	0.022uF Z 25V F T
C192	CCAT-F223Z-AAF	CAPACITOR CERAMIC	0.022uF Z 25V F T
C101	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C102	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C119	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C120	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C158	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T
C141	CCAT-J102K-AAB	CAPACITOR CERAMIC	1000PF K 50V B T
C142	CCAT-J102K-AAB	CAPACITOR CERAMIC	1000PF K 50V B T
C175	CCAT-J102K-AAB	CAPACITOR CERAMIC	1000PF K 50V B T
C176	CCAT-J102K-AAB	CAPACITOR CERAMIC	1000PF K 50V B T
C190	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C202	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C135	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C136	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C137	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C196	CCCT-J104Z-0FF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C206	CEEM-G222M-LR1	CAPACITOR E/ALUMINUM	2200uF M 35V 16x31.5 U M
C207	CEEM-G222M-LR1	CAPACITOR E/ALUMINUM	2200uF M 35V 16x31.5 U M
C143	CEET-D101M-CI0	CAPACITOR E/ALUMINUM	100uF M 10V 5x11 T
C144	CEET-D101M-CI0	CAPACITOR E/ALUMINUM	100uF M 10V 5x11 T
C200	CEET-E471M-FI1	CAPACITOR E/ALUMINUM	470uF M 16V 8x11.5 U T
C188	CEET-F102M-HN0	CAPACITOR E/ALUMINUM	1000uF M 25V 13x16 T
C232	CEET-F220M-CI0	CAPACITOR E/ALUMINUM	22uF M 25V 5x11 T
C153	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
C154	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C155	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C156	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C161	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C162	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C163	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C164	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C167	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C168	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C169	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C170	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C179	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C180	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C210	CEET-G221M-HJ1	CAPACITOR E/ALUMINUM	220uF M 35V 10x12.5 U T
C157	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C181	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C183	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C189	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C201	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C208	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C209	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C218	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C219	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C120	CEET-J221M-HL1	CAPACITOR E/ALUMINUM	220uF M 50V 10x16 U T
C193	CEET-J221M-HL1	CAPACITOR E/ALUMINUM	220uF M 50V 10x16 U T
C139	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C140	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C149	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C150	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C159	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C160	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C165	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C166	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C171	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C172	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C173	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C174	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C177	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C178	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C194	CEET-J470M-DI0	CAPACITOR E/ALUMINUM	47uF M 50V 6.3x11 T
C195	CEET-J470M-DI0	CAPACITOR E/ALUMINUM	47uF M 50V 6.3x11 T
C216	CEEZ-L154M-SW2	CAPACITOR E/ALUMINUM	15000uF M 63V 35x60
C217	CEEZ-L154M-SW2	CAPACITOR E/ALUMINUM	15000uF M 63V 35x60
C138	CFMT-L334J-EGN	CAPACITOR F/POLYESTR	EB 0.33uF J 50V 7.2x9.5 T
C197	CFMT-N103J-DE0	CAPACITOR F/POLYESTR	0.01uF J 100V 6x7 T
C198	CFMT-N103J-DE0	CAPACITOR F/POLYESTR	0.01uF J 100V 6x7 T
C199	CFMT-N103J-DE0	CAPACITOR F/POLYESTR	0.01uF J 100V 6x7 T
C203	CFMT-N103J-DE0	CAPACITOR F/POLYESTR	0.01uF J 100V 6x7 T
C204	CFMT-N103J-DE0	CAPACITOR F/POLYESTR	0.01uF J 100V 6x7 T
C205	CFMT-N103J-DE0	CAPACITOR F/POLYESTR	0.01uF J 100V 6x7 T
C145	CFMT-N152J-CJ0	CAPACITOR F/POLYESTR	0.0015uF J 100V 5.4x12 T
C146	CFMT-N152J-CJ0	CAPACITOR F/POLYESTR	0.0015uF J 100V 5.4x12 T
C151	CFMT-N182J-CJ0	CAPACITOR F/POLYESTR	0.0018uF J 100V 5.5x12 T
C152	CFMT-N182J-CJ0	CAPACITOR F/POLYESTR	0.0018uF J 100V 5.5x12 T
C185	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
C186	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T
C187	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T
C220	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T
C221	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T
C222	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T
C223	CFMT-N473J-GK0	CAPACITOR F/POLYESTR	0.047uF J 100V 8.9x13. T
C147	CFMT-N562J-DJ0	CAPACITOR F/POLYESTR	0.0056uF J 100V 5.8x12 T
C148	CFMT-N562J-DJ0	CAPACITOR F/POLYESTR	0.0056uF J 100V 5.8x12 T
C211	CFMT-S104K-GI0	CAPACITOR F/POLYESTR	0.1uF K 250V 9.5x11 TL
C212	CFMT-S104K-GI0	CAPACITOR F/POLYESTR	0.1uF K 250V 9.5x11 TL
C213	CFMT-S104K-GI0	CAPACITOR F/POLYESTR	0.1uF K 250V 9.5x11 TL
C214	CFMT-S104K-GI0	CAPACITOR F/POLYESTR	0.1uF K 250V 9.5x11 TL
C215	CFMT-S104K-GI0	CAPACITOR F/POLYESTR	0.1uF K 250V 9.5x11 TL
D101	DDMR-00230-T10	DIODE-RECTIFIER	GP60-04F(400V 6A)
D102	DDMR-00230-T10	DIODE-RECTIFIER	GP60-04F(400V 6A)
D103	DDMR-00230-T10	DIODE-RECTIFIER	GP60-04F(400V 6A)
D104	DDMR-00230-T10	DIODE-RECTIFIER	GP60-04F(400V 6A)
D105	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D106	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D107	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D108	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D109	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D110	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D113	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D114	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D115	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D116	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D117	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D118	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D119	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D120	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D121	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D122	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D125	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D126	DDTR-00040-T10	DIODE-RECTIFIER	1N4004S(400V 1A 0.6mm) T
D123	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D124	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D111	DDTZ-G150C-SO0	DIODE ZENER	MTZ15C 14.35-15.09 DO40 T
D112	DDTZ-G180C-SO0	DIODE ZENER	MTZ18C 17.42-18.33 DO40 T
RL101	ESRY-00340-112	RELAY	SDT-S-112DMR
RL104	ESRY-00350-121	RELAY	V23105-A5003-A201
RL102	ESRY-00370-24U	RELAY	OSA-SS-224DM3(24V DC)
RL103	ESRY-00370-24U	RELAY	OSA-SS-224DM3(24V DC)
IC102	ICDG-00260-S10	IC FUNCTION SELECTOR	LC7821 DIP30S
IC104	ICOP-00131-SE0	IC DUAL OP AMP	KA4558C DIP8
IC105	ICOP-00131-SE0	IC DUAL OP AMP	KA4558C DIP8
IC106	ICOP-00131-SE0	IC DUAL OP AMP	KA4558C DIP8
IC107	ICOP-00131-SE0	IC DUAL OP AMP	KA4558C DIP8
IC101	ICOP-00432-SG0	IC OP AMP	NJM2068DD DIP8
IC103	ICOP-00432-SG0	IC OP AMP	NJM2068DD DIP8
IC108	ICPC-00010-TB0	IC PHOTOCOUPLER	LTV817B DIP4
IC109	ICRG-00043-SE0	IC REGULATOR	KA7805 5V 3mm TO-220
IC110	ICRG-00043-SE0	IC REGULATOR	KA7805 5V 3mm TO-220
IC111	ICRG-00061-SE0	IC REGULATOR	KA7815 15V 3mm TO-220
IC112	ICRG-00251-SE0	IC REGULATOR	KA7915 15V 3mm TO-220

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
L101	KI0T-4470K-003	COIL-INDUCTOR	47uH K LAL02 T
L102	KI0T-4470K-003	COIL-INDUCTOR	47uH K LAL02 T
CN107	KNCW-00140-ATM	CONNECTOR-WAFER	5267-10A 2.5mm MILK
CN106	KNCW-00140-3TM	CONNECTOR-WAFER	5267-03A 2.5mm MILK
CN105	KNCW-00140-6TM	CONNECTOR-WAFER	5267-06A 2.5mm MILK
CN113	KNCW-00140-7TM	CONNECTOR-WAFER	5267-07A 2.5mm MILK
CN109	KNCW-00240-AT9	CONNECTOR-WAFER	53014-10 2.0mm WHT
CN108	KNCW-00240-4T9	CONNECTOR-WAFER	53014-04 2.0mm WHT
CN115	KNCW-00823-KT9	CONNECTOR WAFER	6216-20PST
CN111	KNCW-00970-2T9	CONNECTOR-WAFER	JE202-1T-2P
CN112	KNCW-00970-2T9	CONNECTOR-WAFER	JE202-1T-2P
CN104	KNCW-00970-3T9	CONNECTOR-WAFER	JE202-1T-3P
CN101	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
CN102	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
CN103	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
CN114	KNCW-01520-ES9	CONNECTOR-WAFER	35336-1410 20MM 14P
	MEAC-08215-004	RADIATOR-TR	
	MEAC-12693-004	HEAT-SINK(TR)	
GT101	MPAC-03810-004	TERMINAL-GND	ET-HD T0.3
GT102	MPAC-03810-004	TERMINAL-GND	ET-HD T0.3
GT103	MPAC-03810-004	TERMINAL-GND	ET-HD T0.3
FC101	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC102	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC103	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC104	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC107	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC108	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC109	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC110	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC111	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
FC112	MPAC-11620-004	FUSE CLIP	5.2Pi TAPPING TYPE
PCB1	PCSR-05390-11B	PCB-SINGLE	A1R-539 330x247x1.6t
PT101	PTA1-03680-CJU	TRANSFORMER-POWER	A28-368C-U
R226	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R101	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R102	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R138	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R139	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R140	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R149	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R153	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R154	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R159	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R160	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R179	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R191	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R199	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R240	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R147	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R148	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R167	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R169	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R170	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R172	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R177	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
R178	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R239	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R119	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R120	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R121	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R122	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R131	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R132	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R137	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R145	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R146	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R157	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R158	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R163	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R164	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R190	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R198	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R203	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R204	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R207	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R208	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R213	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R214	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R221	RCFT-E123J-000	RESISTOR-CARBON FILM	12Kohm 1/5W 5% T
R174	RCFT-E151J-000	RESISTOR-CARBON FILM	150ohm 1/5W 5% T
R215	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R216	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R173	RCFT-E202J-000	RESISTOR-CARBON FILM	2Kohm 1/5W 5% T
R209	RCFT-E202J-000	RESISTOR-CARBON FILM	2Kohm 1/5W 5% T
R210	RCFT-E202J-000	RESISTOR-CARBON FILM	2Kohm 1/5W 5% T
R180	RCFT-E220J-000	RESISTOR-CARBON FILM	22ohm 1/5W 5% T
R181	RCFT-E220J-000	RESISTOR-CARBON FILM	22ohm 1/5W 5% T
R115	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R116	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R117	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R118	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R133	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R134	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R135	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R136	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R155	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R156	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R165	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R166	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R202	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R217	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R218	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R200	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R211	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R212	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R230	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R232	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R243	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R244	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R151	RCFT-E224J-000	RESISTOR-CARBON FILM	220Kohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
R152	RCFT-E224J-000	RESISTOR-CARBON FILM	220Kohm 1/5W 5% T
R183	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R185	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R187	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R189	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R193	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R195	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R197	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R225	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R235	RCFT-E3R3J-000	RESISTOR-CARBON FILM	3.3ohm 1/5W 5% T
R236	RCFT-E3R3J-000	RESISTOR-CARBON FILM	3.3ohm 1/5W 5% T
R222	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R223	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R224	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R161	RCFT-E392J-000	RESISTOR-CARBON FILM	3.9Kohm 1/5W 5% T
R162	RCFT-E392J-000	RESISTOR-CARBON FILM	3.9Kohm 1/5W 5% T
R227	RCFT-E392J-000	RESISTOR-CARBON FILM	3.9Kohm 1/5W 5% T
R176	RCFT-E4R7J-000	RESISTOR-CARBON FILM	4.7ohm 1/5W 5% T
R248	RCFT-E4R7J-000	RESISTOR-CARBON FILM	4.7ohm 1/5W 5% T
R228	RCFT-E470J-000	RESISTOR-CARBON FILM	47ohm 1/5W 5% T
R103	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R104	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R105	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R106	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R107	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R108	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R109	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R110	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R111	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R112	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R113	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R114	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R129	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R130	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R143	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R144	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R205	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R206	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R127	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R128	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R141	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R142	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R229	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R182	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R184	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R186	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R188	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R192	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R194	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R196	RCFT-E512J-000	RESISTOR-CARBON FILM	5.1Kohm 1/5W 5% T
R125	RCFT-E564J-000	RESISTOR-CARBON FILM	560Kohm 1/5W 5% T
R126	RCFT-E564J-000	RESISTOR-CARBON FILM	560Kohm 1/5W 5% T
R168	RCFT-E622J-000	RESISTOR-CARBON FILM	6.2Kohm 1/5W 5% T
R171	RCFT-E622J-000	RESISTOR-CARBON FILM	6.2Kohm 1/5W 5% T
R123	RCFT-E751J-000	RESISTOR-CARBON FILM	750ohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK MAIN PCB		
R124	RCFT-E751J-000	RESISTOR-CARBON FILM	750ohm 1/5W 5% T
R175	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R201	RCFT-E823J-000	RESISTOR-CARBON FILM	82Kohm 1/5W 5% T
R231	RCFT-E823J-000	RESISTOR-CARBON FILM	82Kohm 1/5W 5% T
R245	RCFT-E823J-000	RESISTOR-CARBON FILM	82Kohm 1/5W 5% T
R246	RCFT-E823J-000	RESISTOR-CARBON FILM	82Kohm 1/5W 5% T
R237	RCFT-F4R7J-010	RESISTOR-CARBON FILM	4.7ohm 1/4W 5% T
R238	RCFT-F4R7J-010	RESISTOR-CARBON FILM	4.7ohm 1/4W 5% T
R247	RCFT-F4R7J-010	RESISTOR-CARBON FILM	4.7ohm 1/4W 5% T
R234	RCFT-G335K-1D0	RESISTOR-CARBON FILM	3.3Mohm 1/2W ERC12UGK33
R253	RMOH-H100J-100	RESISTOR-METAL OXIDE	PRO1 1W 10ohm 5% R-SHAP
R233	RMOH-H4R7J-100	RESISTOR-METAL OXIDE	PRO1 1W 4.7ohm J R-SHAPE
R241	RMOH-H4R7J-100	RESISTOR-METAL OXIDE	PRO1 1W 4.7ohm J R-SHAPE
R242	RMOH-H4R7J-100	RESISTOR-METAL OXIDE	PRO1 1W 4.7ohm J R-SHAPE
R249	RMOH-J100J-040	RESISTOR-METAL OXIDE	10ohm 2W 5% H
R250	RMOH-J100J-040	RESISTOR-METAL OXIDE	10ohm 2W 5% H
R251	RMOH-J100J-040	RESISTOR-METAL OXIDE	10ohm 2W 5% H
R252	RMOH-J100J-040	RESISTOR-METAL OXIDE	10ohm 2W 5% H
A0101	SKAO-00190-C50	AC OUTLET	S2-764T-214
JK105	SKPH-00520-360	MINIATURE JACK	HSJ1002-01-1020
JK101	SKRC-00290-020	SOCKET-RCA	JK0200440N 2P
JK102	SKRC-00420-061	SOCKET-RCA	JK0600460N
JK103	SKRC-00420-061	SOCKET-RCA	JK0600460N
JK104	SKRC-00760-060	SOCKET-RCA	JK0600467N
TE101	TESP-00230-08S	TERMINAL SPEAKER	SH0810360P
Q102	TRTA-0012Y-SD0	TRANSISTOR P-H FREQ	KTA1273-Y TO92L
Q106	TRTA-00940-SD0	TRANSISTOR P-H FREQ	KRA107M W/RESIST TO92M
Q109	TRTA-00940-SD0	TRANSISTOR P-H FREQ	KRA107M W/RESIST TO92M
Q105	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M W/RESIST TO92M
Q101	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q103	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q104	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q107	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q108	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q110	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q111	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
	BLOCK FRONT PCB		
C302	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C305	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C306	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C308	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C314	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C315	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C503	CCAT-J330J-AAZ	CAPACITOR CERAMIC	33PF J 50V SL T
C504	CCAT-J330J-AAZ	CAPACITOR CERAMIC	33PF J 50V SL T
C317	CCAT-J470J-AAZ	CAPACITOR CERAMIC	47PF J 50V SL T
C501	CCAT-J470J-AAZ	CAPACITOR CERAMIC	47PF J 50V SL T
C502	CCAT-J470J-AAZ	CAPACITOR CERAMIC	47PF J 50V SL T
C311	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C312	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C307	CCCT-J103Z-0DF	CAPACITOR CERAMIC	0.01uF Z 50V F T
C413	CCTT-J120J-0BC	CAPACITOR CERAMIC	12PF J 50V CH T
C414	CCTT-J120J-0BC	CAPACITOR CERAMIC	12PF J 50V CH T
C419	CCTT-J470J-0DC	CAPACITOR CERAMIC	47PF J 50V CH T

Ref. No.	Part No.	Description	
	BLOCK FRONT PCB		
C420	CCTT-J470J-0DC	CAPACITOR CERAMIC	47PF J 50V CH T
C403	CCTT-J680J-0FC	CAPACITOR CERAMIC	68PF J 50V CH T
C404	CCTT-J680J-0FC	CAPACITOR CERAMIC	68PF J 50V CH T
C409	CCTT-J681J-0BZ	CAPACITOR CERAMIC	680PF J 50V SL T
C410	CCTT-J681J-0BZ	CAPACITOR CERAMIC	680PF J 50V SL T
C411	CEET-C471M-FI1	CAPACITOR E/ALUMINUM	470uF M 6.3V 8x11.5 U T
C412	CEET-C471M-FI1	CAPACITOR E/ALUMINUM	470uF M 6.3V 8x11.5 U T
C428	CEET-C471M-FI1	CAPACITOR E/ALUMINUM	470uF M 6.3V 8x11.5 U T
C401	CEET-F220M-CI0	CAPACITOR E/ALUMINUM	22uF M 25V 5x11 T
C402	CEET-F220M-CI0	CAPACITOR E/ALUMINUM	22uF M 25V 5x11 T
C407	CEET-F220M-CI0	CAPACITOR E/ALUMINUM	22uF M 25V 5x11 T
C408	CEET-F220M-CI0	CAPACITOR E/ALUMINUM	22uF M 25V 5x11 T
C405	CEET-F330M-CI0	CAPACITOR E/ALUMINUM	33uF M 25V 5x11 T
C406	CEET-F330M-CI0	CAPACITOR E/ALUMINUM	33uF M 25V 5x11 T
C304	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C316	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C509	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C510	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C303	CEET-JR10M-CI0	CAPACITOR E/ALUMINUM	0.1uF M 50V 5x11 T
C310	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C427	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C309	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C421	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C422	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C425	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C426	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C505	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C506	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C507	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C508	CEET-J100M-CI0	CAPACITOR E/ALUMINUM	10uF M 50V 5x11 T
C423	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C424	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C313	CEET-J470M-DI0	CAPACITOR E/ALUMINUM	47uF M 50V 6.3x11 T
C415	CEET-L331M-DI1	CAPACITOR E/ALUMINUM	330uF M 63V 10x20 SHL T
C416	CEET-L331M-DI1	CAPACITOR E/ALUMINUM	330uF M 63V 10x20 SHL T
C417	CEET-L331M-DI1	CAPACITOR E/ALUMINUM	330uF M 63V 10x20 SHL T
C418	CEET-L331M-DI1	CAPACITOR E/ALUMINUM	330uF M 63V 10x20 SHL T
C301	CEGT-B104J-0J0	CAPACITOR E/DO LAYER	0.1F J 5.5V SCDA5R5104A T
C511	CFMT-N183J-EK0	CAPACITOR F/POLYESTR	0.018uF J 100V 7.3x13 T
C512	CFMT-N183J-EK0	CAPACITOR F/POLYESTR	0.018uF J 100V 7.3x13 T
C517	CFMT-N183J-EK0	CAPACITOR F/POLYESTR	0.018uF J 100V 7.3x13 T
C518	CFMT-N183J-EK0	CAPACITOR F/POLYESTR	0.018uF J 100V 7.3x13 T
C515	CFMT-N392J-DJ0	CAPACITOR F/POLYESTR	0.0039uF J 100V 5.8x12 T
C516	CFMT-N392J-DJ0	CAPACITOR F/POLYESTR	0.0039uF J 100V 5.8x12 T
C513	CFMT-N823J-IK0	CAPACITOR F/POLYESTR	0.082uF J 100V 10.6x14 T
C514	CFMT-N823J-IK0	CAPACITOR F/POLYESTR	0.082uF J 100V 10.6x14 T
D301	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D302	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D303	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D304	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D306	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D307	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D308	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D309	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D310	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T

Ref. No.	Part No.	Description	
	BLOCK FRONT PCB		
D311	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D312	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D401	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D402	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D403	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D404	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D405	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D305	DDTZ-G075B-SO0	DIODE ZENER	MTZ7.5B 7.07-7.45 D040 T
D406	DDTZ-G091B-SO0	DIODE ZENER	MTZ9.1B 9.01 DO40 T
FL301	DPFL-00780-000	VFD	HNA-16LL15
LD802	DPLE-00210-YG0	DISPLAY-LED	SM3511
LD301	DPLE-00211-GG0	DISPLAY-LED	SM3511(F2T)
LD302	DPLE-00211-GG0	DISPLAY-LED	SM3511(F2T)
LD303	DPLE-00211-GG0	DISPLAY-LED	SM3511(F2T)
LD304	DPLE-00211-GG0	DISPLAY-LED	SM3511(F2T)
LD305	DPLE-00211-GG0	DISPLAY-LED	SM3511(F2T)
LD306	DPLE-00211-GG0	DISPLAY-LED	SM3511(F2T)
LD801	DPLE-00280-RG0	DISPLAY-LED	SAM5270 RED/GRN
IC304	ICCM-01500-SB0	IC MEMORY LSI	BR24C04-W DIP8
IC302	ICHY-00370-U80	IC REMOTE RECEIVER	HI-M602H0
IC301	ICMP-04110-SE0	IC (U-COM)	UPD780204GF-084-3BA
IC303	ICOP-00210-SD0	IC RESET	KIA7042P/F 4.2V TO-92
IC501	ICOP-03150-SG0	IC OP AMP	NJM2068M SOP8
L302	KIBK-00190-E40	COIL-AUDIO CHOCK	0.7uH COIL-CHOCK
L401	KIBK-00190-E40	COIL-AUDIO CHOCK	0.7uH COIL-CHOCK
CN402	KNCW-00140-2TM	CONNECTOR-WAFER	5267-02A 2.5mm MILK
CN401	KNCW-00140-3TM	CONNECTOR-WAFER	5267-03A 2.5mm MILK
CN302	KNCW-00160-5S9	CONNECTOR-WAFER	53015-0510 2mm-WHT
CN301	KNCW-00823-KS9	CONNECTOR WAFER	6216-20PRA
CN801	KNCW-00990-2T9	CONNECTOR-WAFER	JE202A-1T-02
Z301	KTRE-00171-042	RESONATOR	CST4.19MGW-TF01
	MEAC-08212-004	RADIATOR	
	MRAG-13830-004	CUSHION-FL	EVA T=5.0
	MRAG-13840-004	CUSHION-REMOTE	EVA T=11.0
	PCSR-05400-11B	PCB-SINGLE	A1R-540 330x247x1.6t
R319	RCFT-E100J-000	RESISTOR-CARBON FILM	10ohm 1/5W 5% T
R346	RCFT-E100J-000	RESISTOR-CARBON FILM	10ohm 1/5W 5% T
R317	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R318	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R495	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R304	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R345	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R405	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R406	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R491	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R302	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R305	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R337	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R338	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R339	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R340	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R341	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R342	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R343	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R344	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK FRONT PCB		
R488	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R492	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R501	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R502	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R511	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R512	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R306	RCFT-E105J-000	RESISTOR-CARBON FILM	1Mohm 1/5W 5% T
R503	RCFT-E105J-000	RESISTOR-CARBON FILM	1Mohm 1/5W 5% T
R504	RCFT-E105J-000	RESISTOR-CARBON FILM	1Mohm 1/5W 5% T
R425	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R426	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R455	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R456	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R415	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R416	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R417	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R418	RCFT-E150J-000	RESISTOR-CARBON FILM	15ohm 1/5W 5% T
R407	RCFT-E151J-000	RESISTOR-CARBON FILM	150ohm 1/5W 5% T
R408	RCFT-E151J-000	RESISTOR-CARBON FILM	150ohm 1/5W 5% T
R471	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R472	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R490	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R494	RCFT-E153J-000	RESISTOR-CARBON FILM	15Kohm 1/5W 5% T
R320	RCFT-E181J-000	RESISTOR-CARBON FILM	180ohm 1/5W 5% T
R321	RCFT-E181J-000	RESISTOR-CARBON FILM	180ohm 1/5W 5% T
R322	RCFT-E181J-000	RESISTOR-CARBON FILM	180ohm 1/5W 5% T
R323	RCFT-E181J-000	RESISTOR-CARBON FILM	180ohm 1/5W 5% T
R324	RCFT-E181J-000	RESISTOR-CARBON FILM	180ohm 1/5W 5% T
R325	RCFT-E181J-000	RESISTOR-CARBON FILM	180ohm 1/5W 5% T
R469	RCFT-E182J-000	RESISTOR-CARBON FILM	1.8Kohm 1/5W 5% T
R470	RCFT-E182J-000	RESISTOR-CARBON FILM	1.8Kohm 1/5W 5% T
R507	RCFT-E203J-000	RESISTOR-CARBON FILM	20Kohm 1/5W 5% T
R508	RCFT-E203J-000	RESISTOR-CARBON FILM	20Kohm 1/5W 5% T
R519	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R520	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R513	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R514	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R517	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R518	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R301	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R303	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R334	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R335	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R336	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R451	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R452	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R453	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R454	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R493	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R477	RCFT-E243J-000	RESISTOR-CARBON FILM	24Kohm 1/5W 5% T
R478	RCFT-E243J-000	RESISTOR-CARBON FILM	24Kohm 1/5W 5% T
R313	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R315	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R463	RCFT-E3R3J-000	RESISTOR-CARBON FILM	3.3ohm 1/5W 5% T
R464	RCFT-E3R3J-000	RESISTOR-CARBON FILM	3.3ohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK FRONT PCB		
R465	RCFT-E3R3J-000	RESISTOR-CARBON FILM	3.3ohm 1/5W 5% T
R466	RCFT-E3R3J-000	RESISTOR-CARBON FILM	3.3ohm 1/5W 5% T
R401	RCFT-E331J-000	RESISTOR-CARBON FILM	330ohm 1/5W 5% T
R402	RCFT-E331J-000	RESISTOR-CARBON FILM	330ohm 1/5W 5% T
R489	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R316	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R403	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R404	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R427	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R428	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R492	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R496	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R497	RCFT-E333J-000	RESISTOR-CARBON FILM	33Kohm 1/5W 5% T
R479	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R480	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R481	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R482	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R483	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R484	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R485	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R486	RCFT-E390J-000	RESISTOR-CARBON FILM	39ohm 1/5W 5% T
R509	RCFT-E432J-000	RESISTOR-CARBON FILM	4.3Kohm 1/5W 5% T
R510	RCFT-E432J-000	RESISTOR-CARBON FILM	4.3Kohm 1/5W 5% T
R505	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R506	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R309	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R310	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R311	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R312	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R441	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R442	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R307	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R326	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R327	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R328	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R329	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R331	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R333	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R314	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R429	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R430	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R431	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R432	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R433	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R434	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R435	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R436	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R437	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R438	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R439	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R440	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R473	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R474	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R515	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R516	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK FRONT PCB		
R409	RCFT-E680J-000	RESISTOR-CARBON FILM	68ohm 1/5W 5% T
R410	RCFT-E680J-000	RESISTOR-CARBON FILM	68ohm 1/5W 5% T
R419	RCFT-E681J-000	RESISTOR-CARBON FILM	680ohm 1/5W 5% T
R420	RCFT-E681J-000	RESISTOR-CARBON FILM	680ohm 1/5W 5% T
R475	RCFT-E682J-000	RESISTOR-CARBON FILM	6.8Kohm 1/5W 5% T
R476	RCFT-E682J-000	RESISTOR-CARBON FILM	6.8Kohm 1/5W 5% T
R487	RCFT-E683J-000	RESISTOR-CARBON FILM	68Kohm 1/5W 5% T
R421	RCFT-E751J-000	RESISTOR-CARBON FILM	750ohm 1/5W 5% T
R422	RCFT-E751J-000	RESISTOR-CARBON FILM	750ohm 1/5W 5% T
R423	RCFT-E751J-000	RESISTOR-CARBON FILM	750ohm 1/5W 5% T
R424	RCFT-E751J-000	RESISTOR-CARBON FILM	750ohm 1/5W 5% T
R443	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R444	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R445	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R446	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R461	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R462	RCFT-E820J-000	RESISTOR-CARBON FILM	82ohm 1/5W 5% T
R457	RCFT-E821J-000	RESISTOR-CARBON FILM	820ohm 1/5W 5% T
R458	RCFT-E821J-000	RESISTOR-CARBON FILM	820ohm 1/5W 5% T
R459	RCFT-E821J-000	RESISTOR-CARBON FILM	820ohm 1/5W 5% T
R460	RCFT-E821J-000	RESISTOR-CARBON FILM	820ohm 1/5W 5% T
	RJWT-00000-AA0	RESISTOR-JUMPER WIRE	60mm-TX123 F
R467	RMFT-LR27J-0J0	RESISTOR-METAL PLATE	0.27ohm 5W 5% MPR
R468	RMFT-LR27J-0J0	RESISTOR-METAL PLATE	0.27ohm 5W 5% MPR
R801	RMOH-J221J-040	RESISTOR-METAL OXIDE	220ohm 2W 5% H
R802	RMOH-J221J-040	RESISTOR-METAL OXIDE	220ohm 2W 5% H
R447	RMOR-H470J-0C0	RESISTOR-METAL OXIDE	47ohm 1W 5% ERG(X)1SJ47(
R448	RMOR-H470J-0C0	RESISTOR-METAL OXIDE	47ohm 1W 5% ERG(X)1SJ47(
R449	RMOR-H470J-0C0	RESISTOR-METAL OXIDE	47ohm 1W 5% ERG(X)1SJ47(
R450	RMOR-H470J-0C0	RESISTOR-METAL OXIDE	47ohm 1W 5% ERG(X)1SJ47(
SW801	SWPU-00591-059	SWITCH-PUSH	SDDLB13300
SW301	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW302	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW303	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW304	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW305	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW306	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW307	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW308	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW309	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW310	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW311	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW312	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW313	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW314	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW315	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW316	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW317	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW318	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
SW802	SWTA-00220-060	SWITCH-TACT	THVV 502G AA 12V 50mA
Q423	TRSA-01450-SJ0	TRANSISTOR N-H FREQ	2SA1859A
Q424	TRSA-01450-SJ0	TRANSISTOR N-H FREQ	2SA1859A
Q421	TRSC-01540-SJ0	TRANSISTOR N-H FREQ	2SC4883A
Q422	TRSC-01540-SJ0	TRANSISTOR N-H FREQ	2SC4883A
Q401	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR TO92

Ref. No.	Part No.	Description		
	BLOCK FRONT PCB			
Q402	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q403	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q404	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q405	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q406	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q407	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q408	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q413	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q414	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q431	TRTA-0011G-SD0	TRANSISTOR P-H FREQ	KTA1268-GR	TO92
Q415	TRTA-0013Y-SD0	TRANSISTOR N-H FREQ	KTA1024-Y	
Q416	TRTA-0013Y-SD0	TRANSISTOR N-H FREQ	KTA1024-Y	
Q409	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q410	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q411	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q412	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q429	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q430	TRTC-0015G-SD0	TRANSISTOR N-H FREQ	KTC3200-GR	TO92
Q301	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q432	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q433	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q434	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR	TO92
Q417	TRTC-0087Y-SD0	TRANSISTOR N-H FREQ	KTC3206-Y	TO92L
Q418	TRTC-0087Y-SD0	TRANSISTOR N-H FREQ	KTC3206-Y	TO92L
Q302	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q303	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q304	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q305	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q306	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
Q435	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M	W/RESIST TO92M
	UA10-9M412-200	WIRE-ASS'Y	1007#20 WHT-120 10P	
	UM08-A1033-000	WIRE-ASS'Y	1533#28/1007#26-150 10P	
	UM08-41035-000	WIRE-ASS'Y	1533#28-180 4P	
	U1T1-0GN20-T10	WIRE-ASS'Y	HIGH WRAP#22 BLK 200	
	U208-2K815-000	WIRE-ASS'Y	20080#28 RED-150 2P	
	U245-91327-450	WIRE-ASS'Y	1007#18-270 2P	
	U508-4M716-200	WIRE-ASS'Y	1007#26 YEL-160 5P	
	U710-6M742-200	WIRE-ASS'Y	1007#26 BLU-420	
VR503	VRAE-P049W-104	VR-ROTARY	RK11K1160106-100KW	
VR501	VRAE-P050C-104	VR-ROTARY	RK14K1260106-100KCx2	
VR502	VRAE-P050C-104	VR-ROTARY	RK14K1260106-100KCx2	
CF602	BTCE-00040-107	FILTER-CERAMIC	SFE10.7MS2-A-TF21	
CF603	BTCE-00040-107	FILTER-CERAMIC	SFE10.7MS2-A-TF21	
CF604	BTCE-00450-045	FILTER-CERAMIC	AHCFM2-450AL	
C707	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C708	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C709	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C710	CCAT-F103Z-AAF	CAPACITOR CERAMIC	0.01uF Z 25V F T	
C706	CCAT-F223Z-AAF	CAPACITOR CERAMIC	0.022uF Z 25V F T	
C620	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C621	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C626	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C627	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C628	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	
C629	CCAT-J101K-AAB	CAPACITOR CERAMIC	100PF K 50V B T	

Ref. No.	Part No.	Description	
	BLOCK TUNER PCB		
C640	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C641	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C642	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C803	CCAT-J104Z-AAF	CAPACITOR CERAMIC	0.1uF Z 50V F T
C669	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C711	CCAT-J473Z-AAF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C703	CCAT-J560J-AAZ	CAPACITOR CERAMIC	56PF J 50V SL T
C704	CCAT-J560J-AAZ	CAPACITOR CERAMIC	56PF J 50V SL T
C652	CCAT-J561K-AAB	CAPACITOR CERAMIC	560PF K 50V B T
C665	CCAT-J561K-AAB	CAPACITOR CERAMIC	560PF K 50V B T
C666	CCAT-J680J-AAZ	CAPACITOR CERAMIC	68PF J 50V SL T
C667	CCAT-J680J-AAZ	CAPACITOR CERAMIC	68PF J 50V SL T
C613	CCCT-J103Z-0DF	CAPACITOR CERAMIC	0.01uF Z 50V F T
C623	CCCT-J103Z-0DF	CAPACITOR CERAMIC	0.01uF Z 50V F T
C801	CCCT-J222K-0DB	CAPACITOR CERAMIC	2200PF K 50V B T
C802	CCCT-J222K-0DB	CAPACITOR CERAMIC	2200PF K 50V B T
C602	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C605	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C606	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C608	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C609	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C610	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C611	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C614	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C615	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C616	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C636	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C639	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C661	CCCT-J223Z-0FF	CAPACITOR CERAMIC	0.022uF Z 50V F T
C603	CCCT-J473Z-0JF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C619	CCCT-J473Z-0JF	CAPACITOR CERAMIC	0.047uF Z 50V F T
C604	CCTT-J150J-0BC	CAPACITOR CERAMIC	15PF J 50V CH T
C625	CCTT-J300J-0CC	CAPACITOR CERAMIC	30PF J 50V CH T
C634	CCTT-J331J-0FZ	CAPACITOR CERAMIC	330PF J 50V SL T
C624	CCTT-J390J-0DC	CAPACITOR CERAMIC	39PF J 50V CH T
C651	CCTT-J681J-0BZ	CAPACITOR CERAMIC	680PF J 50V SL T
C645	CEET-E101M-DI0	CAPACITOR E/ALUMINUM	100uF M 16V 6.3x11 T
C705	CEET-E101M-DI0	CAPACITOR E/ALUMINUM	100uF M 16V 6.3x11 T
C601	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C612	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C618	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C622	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C638	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C701	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C702	CEET-F470M-CI0	CAPACITOR E/ALUMINUM	47uF M 25V 5x11 T
C607	CEET-G100M-CI0	CAPACITOR E/ALUMINUM	10uF M 35V 5x11 T
C647	CEET-G100M-CI0	CAPACITOR E/ALUMINUM	10uF M 35V 5x11 T
C648	CEET-G100M-CI0	CAPACITOR E/ALUMINUM	10uF M 35V 5x11 T
C664	CEET-G100M-CI0	CAPACITOR E/ALUMINUM	10uF M 35V 5x11 T
C663	CEET-JR22M-CI0	CAPACITOR E/ALUMINUM	0.22uF M 50V 5x11 T
C630	CEET-JR47M-CI0	CAPACITOR E/ALUMINUM	0.47uF M 50V 5x11 T
C632	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C644	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C662	CEET-J1R0M-CI0	CAPACITOR E/ALUMINUM	1.0uF M 50V 5x11 T
C633	CEET-J3R3M-CI0	CAPACITOR E/ALUMINUM	3.3uF M 50V 5x11 T

Ref. No.	Part No.	Description	
	BLOCK TUNER PCB		
C617	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C631	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C643	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C650	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C668	CEET-J4R7M-CI0	CAPACITOR E/ALUMINUM	4.7uF M 50V 5x11 T
C670	CFMT-N223J-EK0	CAPACITOR F/POLYESTR	0.022uF J 100V 7.4x13 T
C637	CFMT-N332J-DJ0	CAPACITOR F/POLYESTR	0.0033uF J 100V 5.8x12 T
C646	CFMT-N393J-FK0	CAPACITOR F/POLYESTR	0.039uF J 100V 8.5x13. T
C671	CFST-O471J-CJ0	CAPACITOR F/STYROL	470PF J 125V 5.5x12 T
VD601	DDSV-00120-S10	DIODE-VVC	SVC321SPA-C2 AM8V DO40S
VD602	DDSV-00120-S10	DIODE-VVC	SVC321SPA-C2 AM8V DO40S
D601	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D801	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
D802	DDTS-00070-SO0	DIODE-SI	1SS133 (40V 0.11A) DO-40 T
ZD601	DDTZ-G051B-SOS	DIODE ZENER	MTZJ5.1B 4.94-5.20 DO34 T
D701	DDTZ-G062B-SOS	DIODE ZENER	MTZJ6.2B 5.96-6.27 DO34 T
IC701	ICDG-00560-SO0	IC MOTOR DRIVER	BA6208 SIP9
IC603	ICLN-03610-S10	IC PLL FM MPX	LA3401 DIP22
IC604	ICLN-03620-S10	IC AM/FM IF	LA1266 DIP24
IC602	ICLN-03680-S10	IC PLL	LC7218JM SOP-24
T606	IFFA-00110-E20	IFT-FM	AFA011 7mm-CAN
T604	IFFD-00100-E20	IFT-FM DET	AFD010 7mm-CAN
T605	KIAA-00260-E20	COIL-AM IFT	AAA-026 7MC-K502713N4-KR
T603	KIAO-00460-E20	COIL-AM OSC	AAO046 MW 7mm - CAN
T607	KIAT-00530-E20	COIL-AM ANT	AAT053 MW 7mm - CAN
T601	KIML-A0010-E20	COIL-FM MPX FILTER	AMA001 19KHz 10mm-CAN
T602	KIML-A0010-E20	COIL-FM MPX FILTER	AMA001 19KHz 10mm-CAN
CN702	KNCW-00160-5S9	CONNECTOR-WAFER	53015-0510 2mm-WHT
CN701	KNCW-00240-AT9	CONNECTOR-WAFER	53014-10 2.0mm WHT
CW701	KNCW-00240-AT9	CONNECTOR-WAFER	53014-10 2.0mm WHT
CN703	KNCW-00240-2T9	CONNECTOR-WAFER	53014-02 2.0mm WHT
CW802	KNCW-00240-2T9	CONNECTOR-WAFER	53014-02 2.0mm WHT
TP601	KNCW-01490-2T9	CONNECTOR-WAFER	JE115-AT-02P
TP602	KNCW-01490-2T9	CONNECTOR-WAFER	JE115-AT-02P
TP603	KNCW-01490-2T9	CONNECTOR-WAFER	JE115-AT-02P
CH602	KNCW-01510-ES9	CONNECTOR-WAFER	35237-1410 2M/M 14P
X601	KTAL-00041-072	CRYSTAL	HC-49/U 7.200000MHz
CF605	KTRE-00300-288	RESONATOR	ZTB456F11
R655	PCSR-01440-31B	PCB-SINGLE	A3R-144 247x197x1.6t
R613	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R629	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R634	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R639	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R648	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R651	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R673	RCFT-E101J-000	RESISTOR-CARBON FILM	100ohm 1/5W 5% T
R603	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R611	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R618	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R636	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R637	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R638	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R654	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R658	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R703	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T

Ref. No.	Part No.	Description	
	BLOCK TUNER PCB		
R704	RCFT-E102J-000	RESISTOR-CARBON FILM	1Kohm 1/5W 5% T
R620	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R622	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R625	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R640	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R643	RCFT-E103J-000	RESISTOR-CARBON FILM	10Kohm 1/5W 5% T
R604	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R605	RCFT-E104J-000	RESISTOR-CARBON FILM	100Kohm 1/5W 5% T
R612	RCFT-E122J-000	RESISTOR-CARBON FILM	1.2Kohm 1/5W 5% T
R675	RCFT-E124J-000	RESISTOR-CARBON FILM	120Kohm 1/5W 5% T
R677	RCFT-E124J-000	RESISTOR-CARBON FILM	120Kohm 1/5W 5% T
R653	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R671	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R803	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R804	RCFT-E152J-000	RESISTOR-CARBON FILM	1.5Kohm 1/5W 5% T
R628	RCFT-E182J-000	RESISTOR-CARBON FILM	1.8Kohm 1/5W 5% T
R676	RCFT-E184J-000	RESISTOR-CARBON FILM	180Kohm 1/5W 5% T
R678	RCFT-E184J-000	RESISTOR-CARBON FILM	180Kohm 1/5W 5% T
R626	RCFT-E220J-000	RESISTOR-CARBON FILM	22ohm 1/5W 5% T
R630	RCFT-E220J-000	RESISTOR-CARBON FILM	22ohm 1/5W 5% T
R615	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R616	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R679	RCFT-E221J-000	RESISTOR-CARBON FILM	220ohm 1/5W 5% T
R614	RCFT-E222J-000	RESISTOR-CARBON FILM	2.2Kohm 1/5W 5% T
R642	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R650	RCFT-E223J-000	RESISTOR-CARBON FILM	22Kohm 1/5W 5% T
R619	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R705	RCFT-E271J-000	RESISTOR-CARBON FILM	270ohm 1/5W 5% T
R627	RCFT-E273J-000	RESISTOR-CARBON FILM	27Kohm 1/5W 5% T
R607	RCFT-E331J-000	RESISTOR-CARBON FILM	330ohm 1/5W 5% T
R608	RCFT-E331J-000	RESISTOR-CARBON FILM	330ohm 1/5W 5% T
R609	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R635	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R652	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R672	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R674	RCFT-E332J-000	RESISTOR-CARBON FILM	3.3Kohm 1/5W 5% T
R606	RCFT-E4R7J-000	RESISTOR-CARBON FILM	4.7ohm 1/5W 5% T
R621	RCFT-E471J-000	RESISTOR-CARBON FILM	470ohm 1/5W 5% T
R623	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R631	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R632	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R633	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R646	RCFT-E472J-000	RESISTOR-CARBON FILM	4.7Kohm 1/5W 5% T
R624	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R647	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R649	RCFT-E473J-000	RESISTOR-CARBON FILM	47Kohm 1/5W 5% T
R610	RCFT-E561J-000	RESISTOR-CARBON FILM	560ohm 1/5W 5% T
R644	RCFT-E622J-000	RESISTOR-CARBON FILM	6.2Kohm 1/5W 5% T
R617	RCFT-E683J-000	RESISTOR-CARBON FILM	68Kohm 1/5W 5% T
R702	RCFT-E821J-000	RESISTOR-CARBON FILM	820ohm 1/5W 5% T
R645	RCFT-E823J-000	RESISTOR-CARBON FILM	82Kohm 1/5W 5% T
R655	RCFT-G471J-190	RESISTOR-CARBON FILM	470ohm 1/2W 5% 2.3x6.5 T
	RJWT-00000-AA0	RESISTOR-JUMPER WIRE	60mm-TX123 F
R701	RMOH-H820J-100	MOR	PRO1 1W 82ohm 5% R-SHAP
JK801	SKPH-00293-66W	SOCKET-PHONE	HTJ064-05BG GOLD

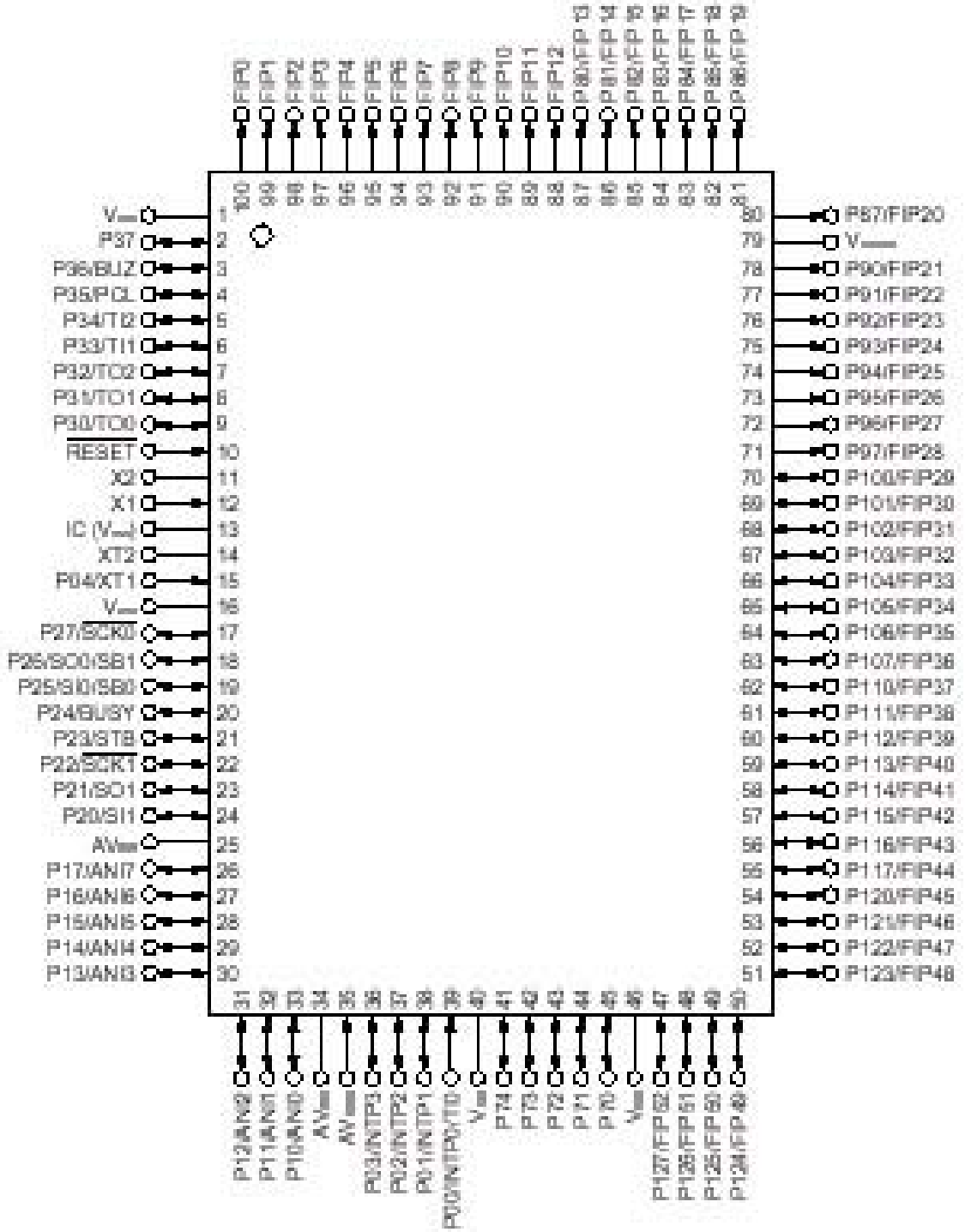
Ref. No.	Part No.	Description	
	BLOCK TUNER PCB		
ANT601	TEAT-00143-02S	TERMINAL ANTENNA	SC021039FN
Q602	TRTA-00940-SD0	TRANSISTOR P-H FREQ	KRA107M W/RESIST TO92M
Q604	TRTA-00940-SD0	TRANSISTOR P-H FREQ	KRA107M W/RESIST TO92M
Q606	TRTA-00940-SD0	TRANSISTOR P-H FREQ	KRA107M W/RESIST TO92M
Q609	TRTA-00940-SD0	TRANSISTOR P-H FREQ	KRA107M W/RESIST TO92M
Q601	TRTC-0010Y-SD0	TRANSISTOR N-H FREQ	KTC3194-Y TO92
Q607	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR TO92
Q608	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR TO92
Q610	TRTC-0016G-SD0	TRANSISTOR N-H FREQ	KTC3198-GR TO92
Q701	TRTC-01060-SD0	TRANSISTOR N-H FREQ	KTC3203 TO92
Q702	TRTC-01700-SD0	TRANSISTOR N-H FREQ	KRC107M W/RESIST TO92M
Q603	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
Q605	TRTD-00200-SD0	TRANSISTOR N-L FREQ	KTD-1302 TO92
FE601	TUFF-00232-00K	FM F/E TUNER	FTA3-509HA
	UM08-A1034-000	WIRE-ASS'Y	1533#28/1007#26-200 10P
	U310-2M530-200	WIRE-ASS'Y	1007#22 RED-300 3P
CT601	VCTC-00022-200	TRIMMER	CVCN06C200
VR602	VFEB-A021B-224	RESISTOR-SEMI FIXED	RH0638C-220KB 220Kohm
VR603	VFEB-A021B-472	RESISTOR-SEMI FIXED	RH0638C-4.7KB 4.7Kohm
VR601	VFEB-A021B-473	RESISTOR-SEMI FIXED	RH0638C-47KB 47Kohm
MV701	VWBD-E017A-503	VR-W/MOTOR	RK16812MG-50KAx2

TUNER COMPLETE PCB ASS'Y - PART# TUNERHK3370/3470

Circuit Description

CPU(IC401) :uPD780204GF

1. Pin Configuration



2. Pin Description

uPD780204GF QFP Type

Pin No.	Pin Name	I/O	ACTIVE	PORT NAME	REMARK
1	Vdd	-	H	+5V	System power supply
2	P37	I	H	KR4	Key read 4
3	P36	I	H	KR3	Key read 3
4	P35	I	H	KR2	Key read 2
5	P34	I	H	KR1	Key read 1
6	P33	-	-	-	Not used
7	P32	-	-	-	Not used
8	P31	O	H/L	PWR_LED(RED)	L:AMBER L:GREEN H:RED
9	P30	O	H/L	PWR_LED(GRN)	L:STBY H:OPER L:PROT
10	RESET	I	L	System reset	Low reset
11	X2	-	-	OSC	Main system osc.
12	X1	I	-	OSC	-
13	Vpp	-	-	Conneced to Vss	
14	XT2	-	-	-	Not used
15	P04/XT1	I	H/L	OPT_RDS	Rds on/off
16	Vdd	-	H	+5V	System power supply
17	P27	-	-		Not used
18	P26	-	-		Not used
19	P25	I	L	PWR DOWN	Detect power off
20	P24	O	H	PWR_RLY	Power Relay on/off
21	P23	O	H	VR_UP	Volume up
22	P22	O	H	VR_DOWN	Volume Down
23	P21	I	L	PROTECT	Detect protection
24	P20	O	H	PWR_MUTE	Power Mute
25	AVss	-	L	GND	Analog ground
26	P17	O	H	PRE_MUTE	Pre mute
27	P16	O	H	TUNER_MUTE	Tuner mute
28	P15	I	H/L	IF_IN	IF conter in
29	P15	O	H	PLL CE	
30	P13	O	H	PLL CLOCK	
31	P12	O	H/L	PLL DATA	
32	P11	I	L	TUNED	Tuned in on : L
33	P10	I	L	STEREO	Stereo in on : L
34	Avdd	-	H	+5V	Analog power supply
35	Avref	-	L	GND	
36	P03	-	-		Not used
37	INTP2	I	L	RDS CLK	Rds clock in
38	P01	I	H	RDS DATA	Rds data in
39	P00	I	L	REMOCON IN	Remocon data in
40	Vss	-	L	GND	Ground
41	P74	O	H/L	78211 CLK	
42	P73	O	H/L	78211 CE	
43	P72	-	-		Not used
44	P71	-	-		Not used
45	P70	-	-		Not used
46	Vdd	-	H	+5V	

Pin No.	Pin Name	I/O	ACTIVE	PORT NAME	REMARK
47	P127	-	-		Not used
48	P127	-	-		Not used
49	P125	-	-		Not used
50	P124	O	H/L	78211 DATA	
51	P123	-	-		Not used
52	P122	-	-		Not used
53	P121	-	-		Not used
54	P120	-	-		Not used
55	P117	O	H	VMAX	VMAx on/off
56	P116	O	H	SPK1_RLY	Speaker1 relay on/off
57	P115	O	H	SPK2_RLY	Speaker2 relay on/off
58	P114	O	H	SPK1_LED	Speaker1 led on/off
59	P113	O	H	SPK2_LED	Speaker2 led on/off
60	P112	O	H	SPK12_LED	Speaker1/2 led on/off
61	P111	-	-		
62	P110	-	-		
63	P107	O	H	VR_LED	Volume led on/off
64	P106	I	H/L	OPT_STEP	L:E.U. , H:USA
65	P105	I	H/L	OPT_3400/3700	L:3400, H:3370
66	FIP33	O	H	S18	FIP segment output
67	FIP32	O	H	S17	FIP segment output
68	FIP31	O	H	S16	FIP segment output
69	FIP30	O	H	S15	FIP segment output
70	FIP29	O	H	S14	FIP segment output
71	FIP28	O	H	S13	FIP segment output
72	FIP27	O	H	S12	FIP segment output
73	FIP26	O	H	S11	FIP segment output
74	FIP25	O	H	S10	FIP segment output
75	FIP24	O	H	S9	FIP segment output
76	FIP23	O	H	S8	FIP segment output
77	FIP22	O	H	S7	FIP segment output
78	FIP21	O	H	S6	FIP segment output
79	Vload	-	-	Vload	FIP DRIVER VOLTAGE
80	FIP20	O	H	S5	FIP segment output
81	FIP19	O	H	S4	FIP segment output
82	FIP18	O	H	S3	FIP segment output
83	FIP17	O	H	S2	FIP segment output
84	FIP16	O	H	S1	FIP segment output
85	FIP15	O	H	G16	FIP grid output
86	FIP14	O	H	G15	FIP grid output
87	FIP13	O	H	G14	FIP grid output
88	FIP12	O	H	G13	FIP grid output
89	FIP11	O	H	G12	FIP grid output
90	FIP10	O	H	G11	FIP grid output
91	FIP9	O	H	G10	FIP grid output
92	FIP8	O	H	G9	FIP grid output
93	FIP7	O	H	G8	FIP grid output
94	FIP6	O	H	G7	FIP grid output
95	FIP5	O	H	G6	FIP grid output

Pin No.	Pin Name	I/O	ACTIVE	PORT NAME	REMARK
96	FIP4	O	H	G5	FIP grid output
97	FIP3	O	H	G4	FIP grid output
98	FIP3	O	H	G3	FIP grid output
99	FIP1	O	H	G2	FIP grid output
100	FIP0	O	H	G1	FIP grid output

3. Timing Chart (IF Count)

① PLL MODE 1

② PLL MODE 2

③ PLL MODE 3

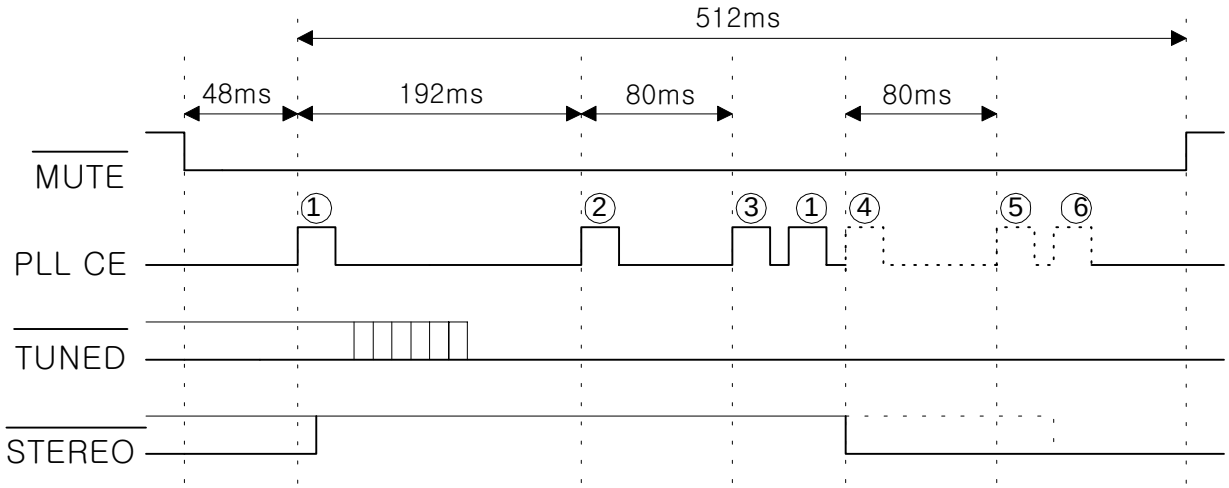
④ PLL MODE 2

⑤ PLL MODE 3

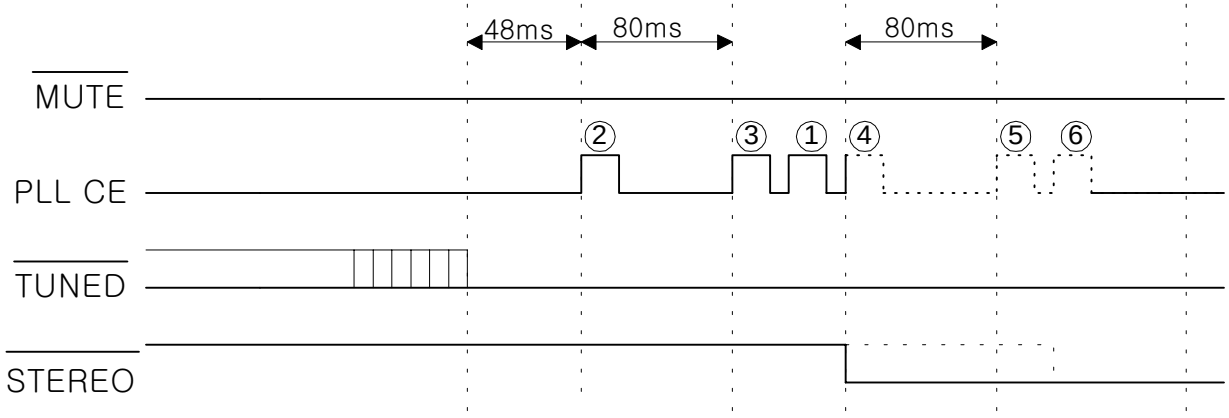
⑥ PLL MODE 1

A dotted line (·····) : In case that IF COUNT is not proper, follow PLL MODE of ④ ⑤ ⑥

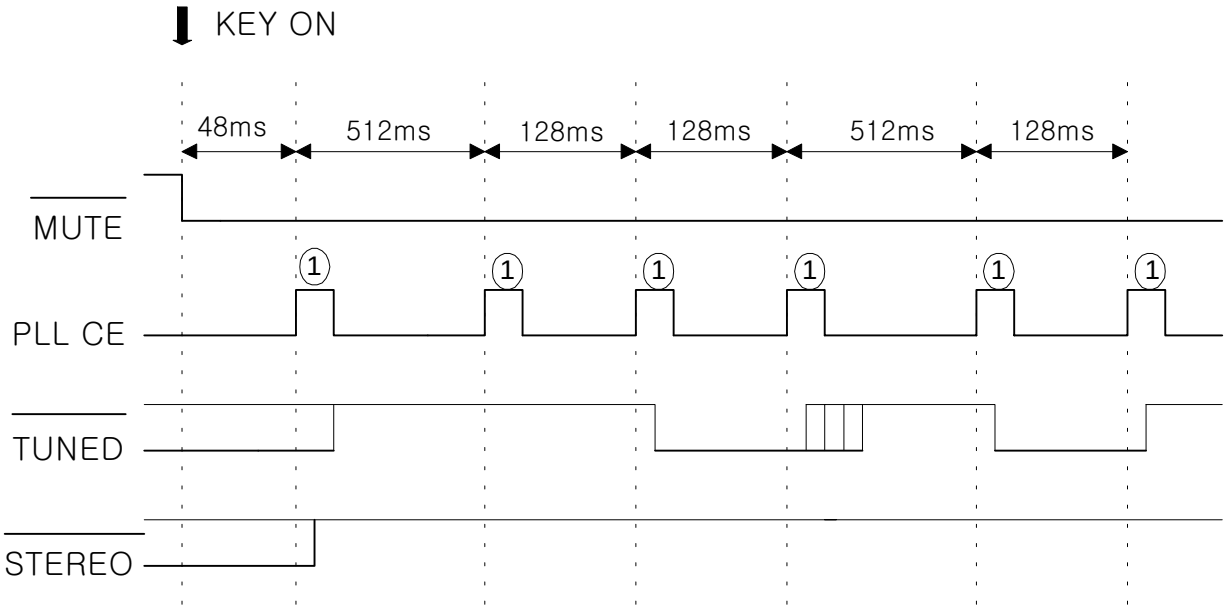
When changing BAND, selecting the PRESET STATION using TEN KEY and selecting the PRESET STATION using PRESET CHANNEL UP/DOWN



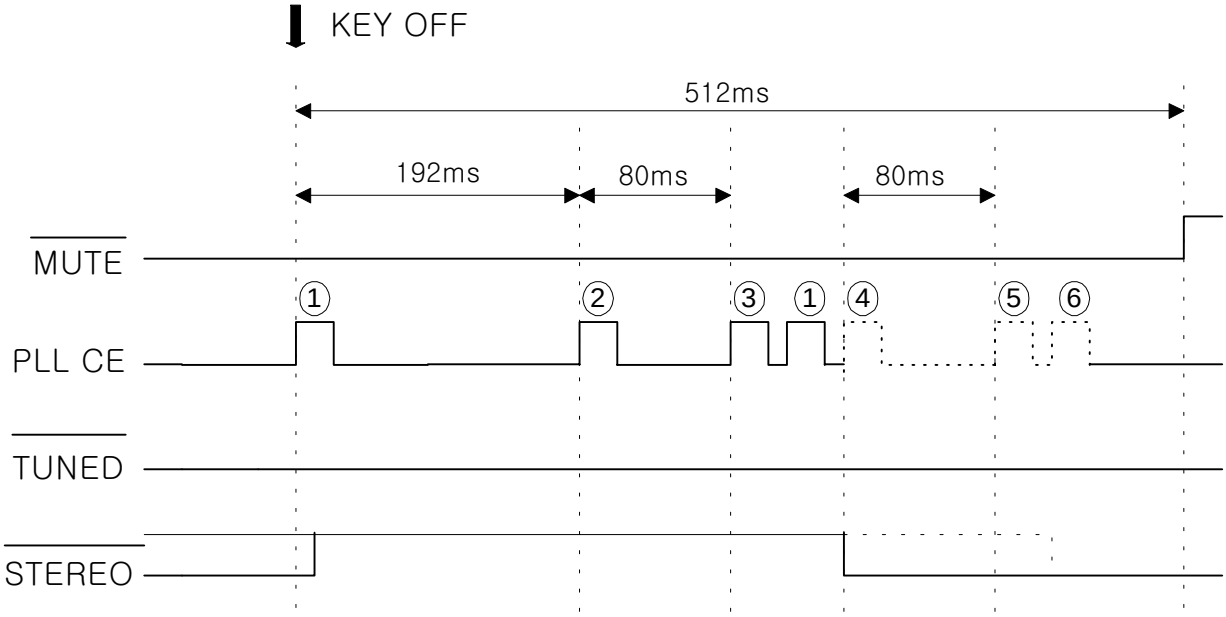
When IF COUNT is not proper in case that the frequency is not tuned



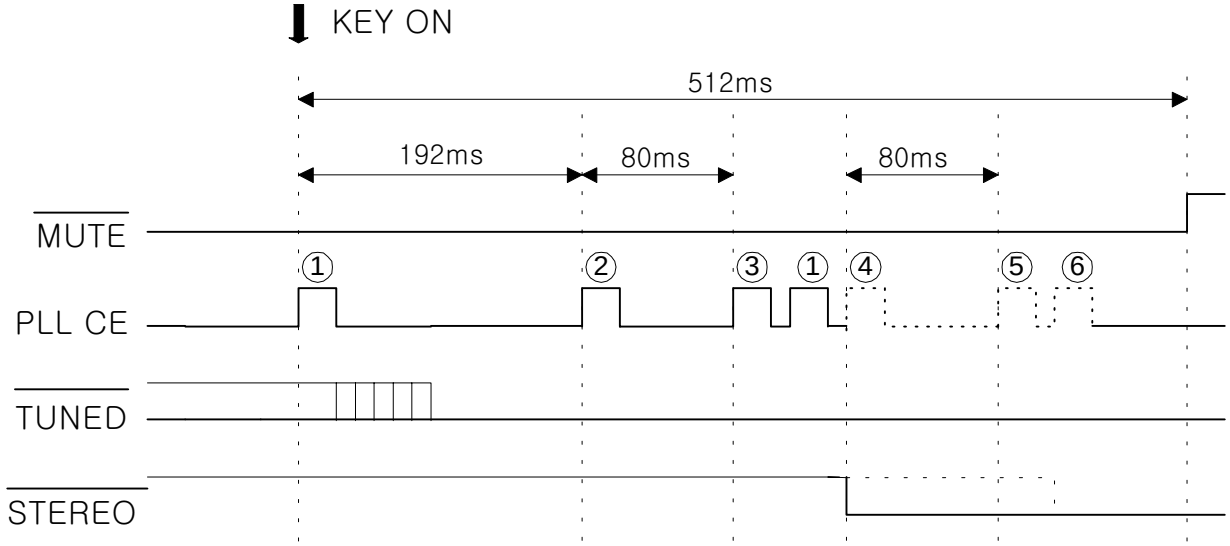
MANUAL TUNING UP/DOWN



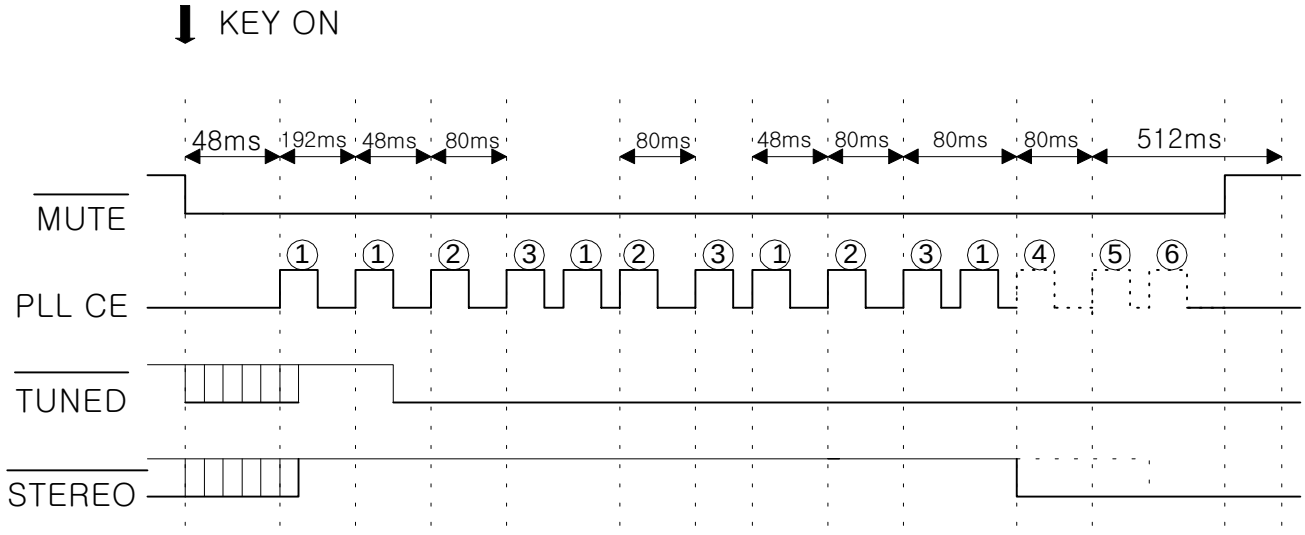
MANUAL TUNING UP/DOWN KEY OFF



- POWER ON



- AUTO TUNING UP/DOWN

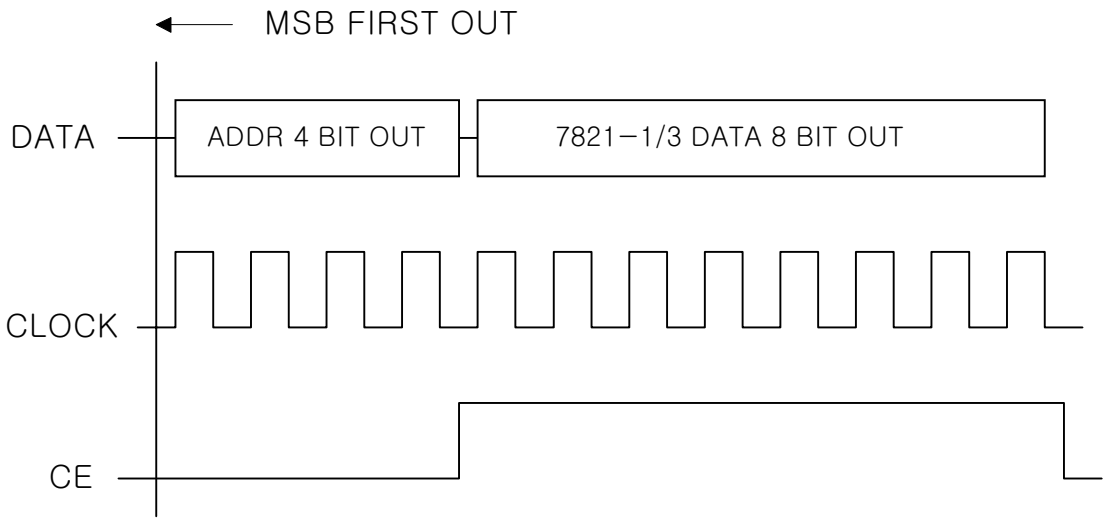


TUNED = HIGH
IFCNT =NG

TUNED = LOW
IFCNT =OK

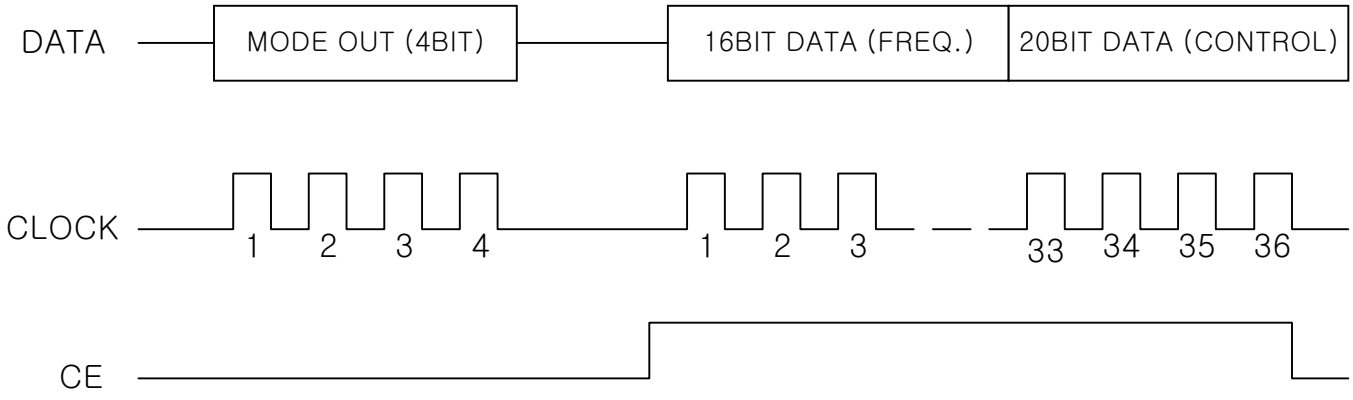
4. Pheriperal IC Operation

1) FUNCTION IC. : LC7821-1/3

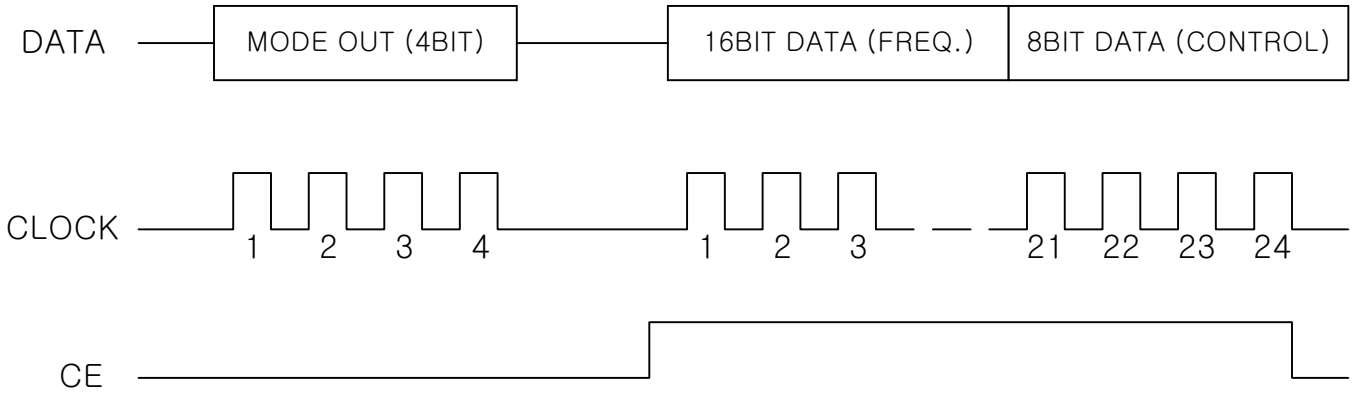


2) PLL IC. (LC7218)

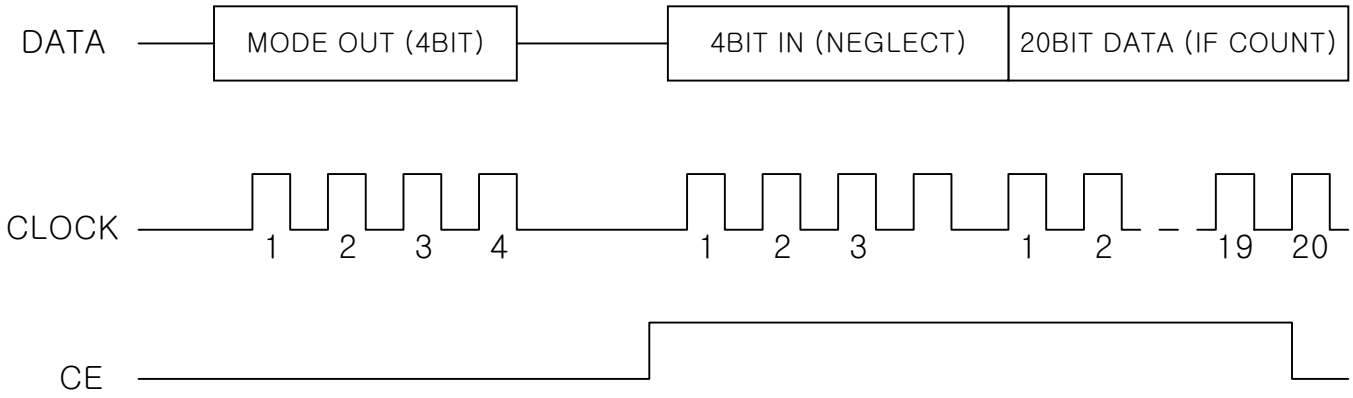
1) MODE 1 : FREQUENCY OUT/ TUNED CHECK



2) MODE 2 : FREQUENCY OUT/ OUTPUT CONTROL



3) MODE 3 : IF COUNT READ



Motor driver ICs

Reversible motor driver

BA6208 / BA6208F

The BA6208 and BA6208F are monolithic ICs used for driving reversible motors. They allow control of reversible motors in cassette players and other electrical equipment by using TTL-level logic signals.
The ICs contain a logic section, which controls forward and reverse rotations as well as forced stop, and an output power section, which can supply an output current of up to 100mA (typical) according to the logic control.

●Features

1) Motor driving power transistors are built in (100mA typically).
2) Brake is applied when stopping the motor (when inputs A and B are both HIGH level).
3) Built-in diode to absorb surge currents.
4) Very low standby circuit current when inputs A and B are both LOW level.
5) Wide range of operating supply voltage (4.5 ~ 15.0V).
6) Direct control with the TTL logic.

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Power supply voltage		V_{CC}	18	V
Power dissipation	BA6208	Pd	700*1	mW
	BA6208F	Pd	450*2	
Operating temperature		Topr	−20~+60	℃
Storage temperature		Tstg	−55~+125	℃
Maximum output current		I_{OUT}	500	mA

*1 Reduced by 7 mW for each increase in Ta of 1℃ over 25℃.
*2 Reduced by 4.5 mW for each increase in Ta of 1℃ over 25℃.

●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	4.5	—	15	V

●Input truth table

3pin (Ain)	2pin (Bin)	8pin (Aout)	7pin (Bout)
H	L	H	L
L	H	L	H
H	H	L	L
L	L	OPEN	OPEN

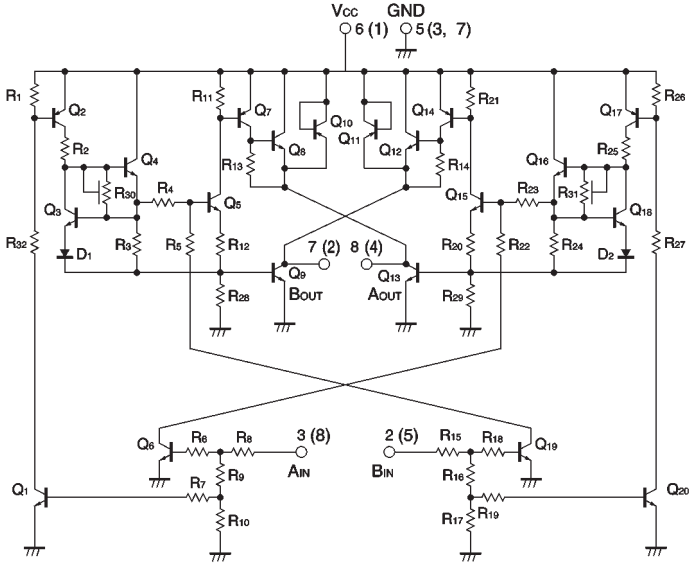
Note : HIGH level input is 2.0 V or more.
LOW level input is 0.8 V or less.

●Electrical characteristics (unless otherwise noted, Ta = 25°C and V_{CC} = 9V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Output current	I_O	200	—	—	mA	
Output saturation voltage	V_{CE}	—	—	1.6	V	I_O=100mA
Input high level voltage	V_{IH}	2.0	—	—	V	
Input low level voltage	V_{IL}	—	—	0.8	V	
Standby supply current	I_{ST}	—	—	0.4	mA	When inputs A and B are both LOW level
Input high level current	I_{IH}	—	—	400	μA	V_{IH}=4.5V

A diode that absorbs at least 500 mA is built in to give protection against surge currents with a pulse width of 10 ms and a duty ratio of 10% or less.

●Internal circuit configuration

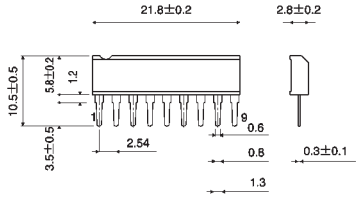


Note : Figures in parentheses are for the BA6208F

Fig.1

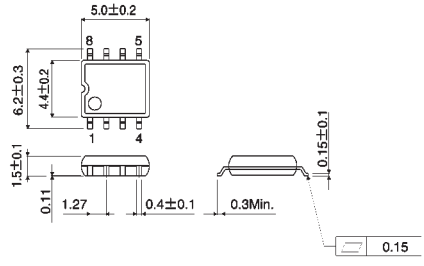
●External dimensions (Units: mm)

BA6208



SIP9

BA6208F



SOP8

FAIRCHILD SEMICONDUCTOR®

www.fairchildsemi.com

KA4558

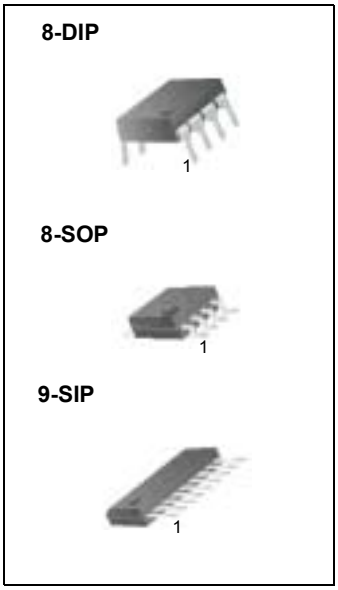
Dual Operational Amplifier

Features

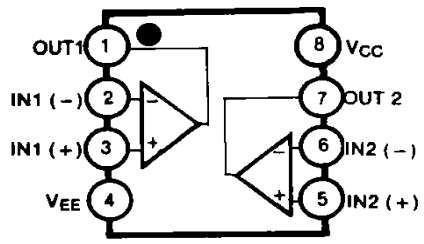
- No frequency compensation required.
- No latch up.
- Large common mode and differential voltage range.
- Parameter tracking over temperature range.
- Gain and phase match between amplifiers.
- Internally frequency compensated.
- Low noise input transistors.

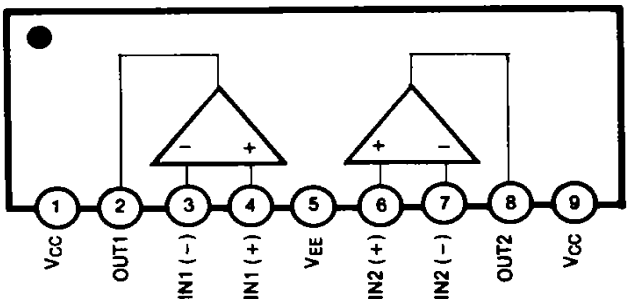
Descriptions

The KA4558 is a monolithic integrated circuit designed for dual operational amplifier.

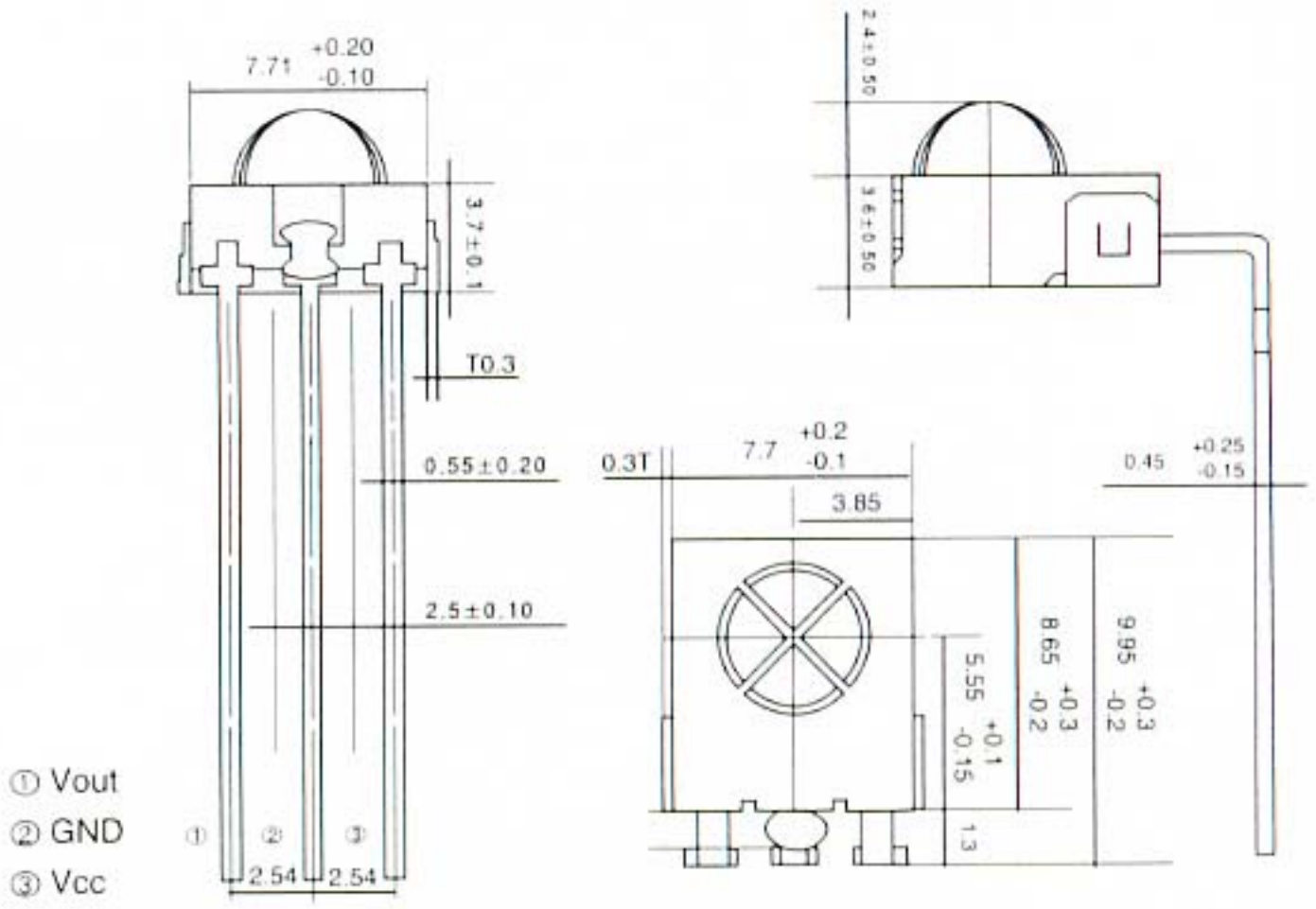


Internal Block Diagram





HI-M602H0 REMOTE RECEIVER



KEC KIA7042

BIPOLAR LINEAR INTEGRATED CIRCUIT

VOLTAGE DETECTOR

Function of this IC is accurately resetting the system after detecting voltage at the time of switching power on and instantaneous power off in various CPU systems and other logic systems.

FEATURES

· Current Consumption is Low. I_{CCL}=300μ μA Typ.
· Resetting Output Minimum Guarantee Voltage is Low 0.8V Typ.
· Hysteresis Voltage is Provided. 50mV Typ.
· Reset Signal Generation Starting Voltages :

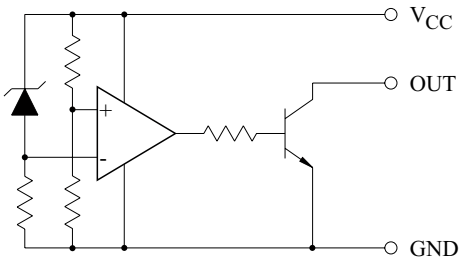
KIA7019	1.9V Typ.	KIA7033	3.3V Typ.
KIA7021	2.1V Typ.	KIA7034	3.4V Typ.
KIA7023	2.3V Typ.	KIA7035	3.5V Typ.
KIA7025	2.5V Typ.	KIA7036	3.6V Typ.
KIA7027	2.7V Typ.	KIA7039	3.9V Typ.
KIA7029	2.9V Typ.	KIA7042	4.2V Typ.
KIA7031	3.1V Typ.	KIA7045	4.5V Typ.
KIA7032	3.2V Typ.		

· Taping Type is also Available.

APPLICATIONS

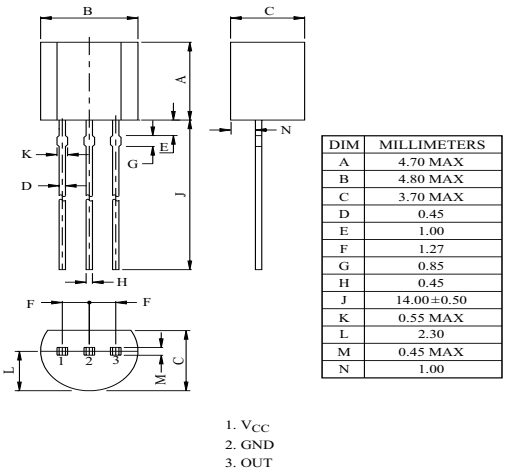
(1) As Control Circuit of Battery-Backed Memory.
(2) As Measure Against Erroneous Operations at Power ON-OFF.
(3) As Measure Against System Runaway at Instantaneous Break of Power Supply etc.
(4) As Resetting Function for the CPU-Mounted Equipment, such as Personal Computers, Printers, VTRs and so forth.

EQUIVALENT CIRCUIT



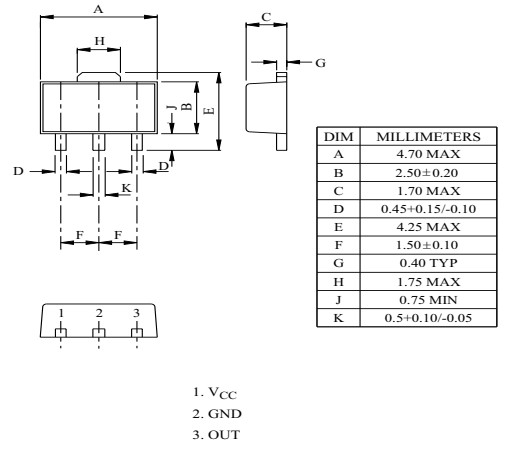
Marking

Type No.	Marking	Type No.	Marking	Type No.	Marking
KIA7019AF/AT	6A	KIA7029AF/AT	6F	KIA7035AF/AT	6L
KIA7021AF/AT	6B	KIA7031AF/AT	6G	KIA7036AF/AT	6M
KIA7023AF/AT	6C	KIA7032AF/AT	6H	KIA7039AF/AT	6N
KIA7025AF/AT	6D	KIA7033AF/AT	6J	KIA7042AF/AT	6P
KIA7027AF/AT	6E	KIA7034AF/AT	6K	KIA7045AF/AT	6R



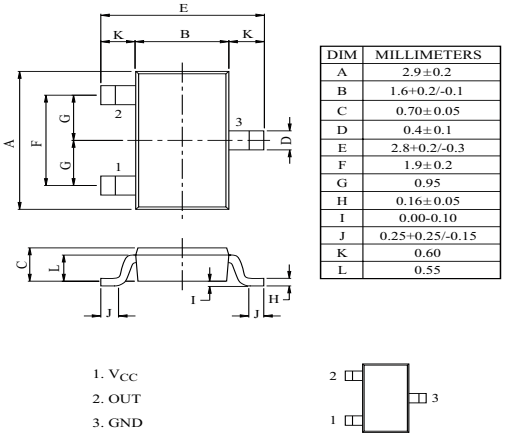
DIM	MILLIMETERS
A	4.70 MAX
B	4.80 MAX
C	3.70 MAX
D	0.45
E	1.00
F	1.27
G	0.85
H	0.45
J	14.00±0.50
K	0.55 MAX
L	2.30
M	0.45 MAX
N	1.00

TO-92



DIM	MILLIMETERS
A	4.70 MAX
B	2.50±0.20
C	1.70 MAX
D	0.45+0.15/-0.10
E	4.25 MAX
F	1.50±0.10
G	0.40 TYP
H	1.75 MAX
J	0.75 MIN
K	0.5+0.10/-0.05

SOT-89



DIM	MILLIMETERS
A	2.9±0.2
B	1.6+0.2/-0.1
C	0.70±0.05
D	0.4±0.1
E	2.8+0.2/-0.3
F	1.9±0.2
G	0.95
H	0.16±0.05
I	0.00-0.10
J	0.25+0.25/-0.15
K	0.60
L	0.55

TSM

Ordering number: EN 1868C

Monolithic Linear IC

SANYO No. 1868C

LA3401

VCO Non-Adjusting PLL FM MPX Stereo Demodulator with FM Accessories

The LA3401 is a multifunctional MPX demodulator IC designed for FM stereo electronic tuning. It features the VCO non-adjusting function that eliminates the need to adjust free-running frequency of VCO and the accessory functions such as FM/AM input, FM/AM input changeover, muting.

Applications

Home stereos, portable hi-fi sets

Functions

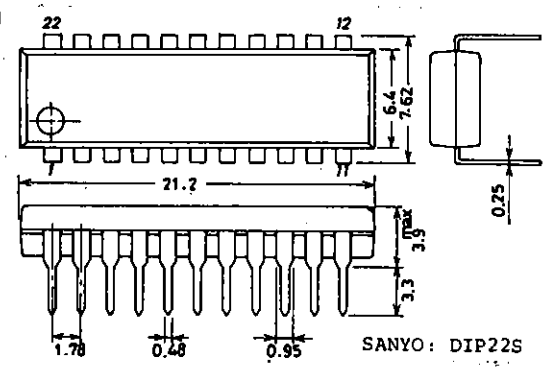
- VCO non-adjusting function
- Gain variable type post amp
- Muting at the FM-AM changeover mode (changeover mute)
- Muting function
- VCO stop function
- Muting at the V_{CC}-ON mode
- PLL MPX stereo demodulator
- FM-AM changeover
- Drive pin for external muting
- Separation adjust function

Features

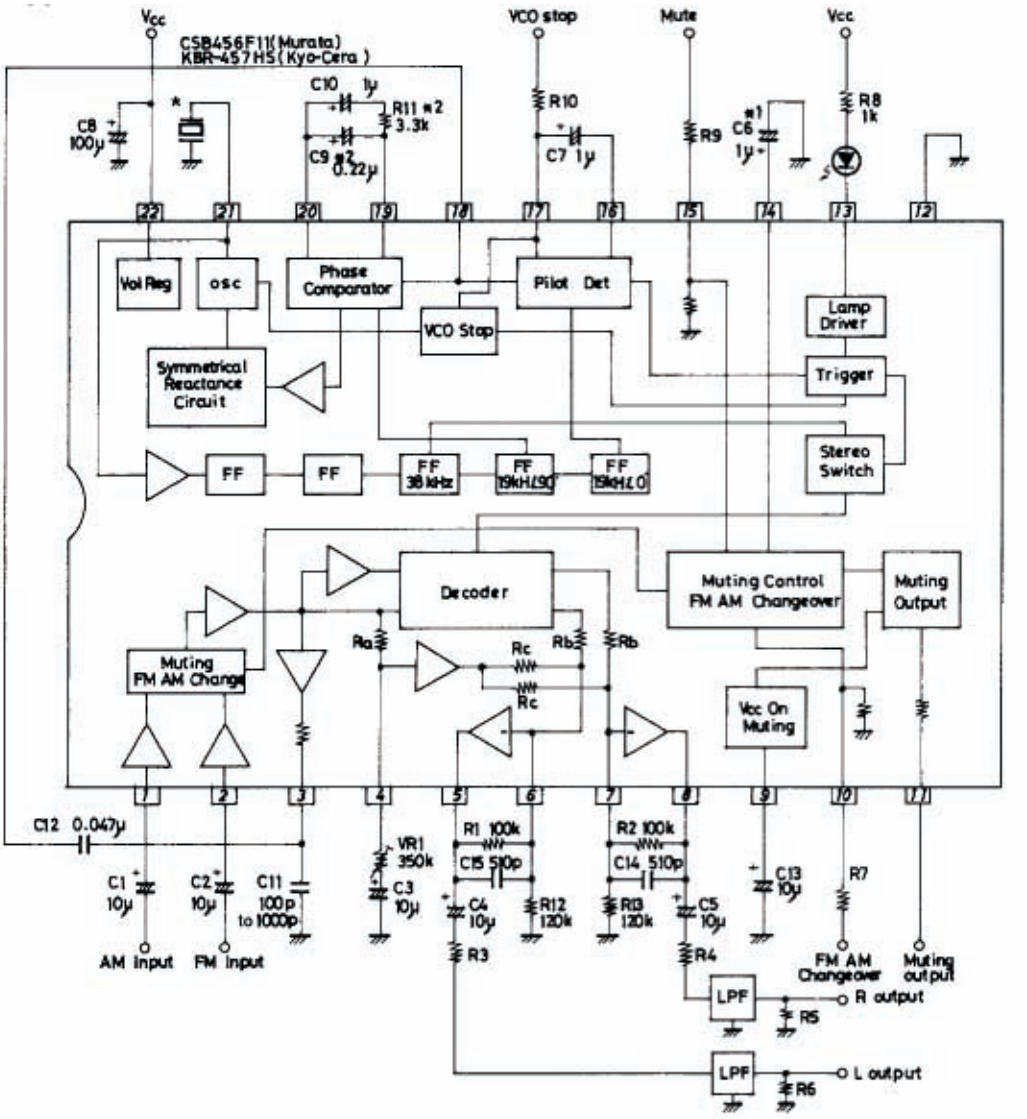
- Non-adjusting VCO: Eliminates the need to adjust free-running frequency.
- Good temperature characteristic of VCO: ±0.1% typ. for ±50°C change.
- Less high frequency distortion of stereo main signal (0.07% typ. at f=10kHz) (Non-adjusting PLL makes it possible to make the capture range narrower, providing less high frequency beat distortion of stereo main signal.)
- Low distortion: Mono 0.01% typ.
  Main 0.025% typ.
- High S/N: 91dB typ./mono 300mV input, LPF
  94dB typ./mono 400mV input, LPF
- High voltage gain: Approximately 13dB (Common to FM, AM at standard constants)
  This gain can be varied by external constants.
- Wide dynamic range: Distortion 1.0%/mono 800mV, 1kHz input
  (Post amp gain: Approximately 13dB)
- The semifixed resistor (pin 4) for separation adjust can be changed to a fixed resistor or can be removed.
- High ripple rejection: 34dB typ.

Package Dimensions 3059

(unit: mm)



IC 603 : LA3401



External Parts

Part No.	Description	Remarks
C1	DC cut	
C2	"	Decreasing the value worsens separation at low frequencies.
C3	"	Decreasing the value worsens separation at low frequencies.
C4,5	"	
C6	Time constant for muting at changeover mode	Even when no FM/AM changeover muting is provided, a capacitor of 0.01μF or greater is connected.
C7	Sync detect filter	
C8	Power supply ripple filter	
C9	PLL loop filter	A capacitor value from 0.1 to 0.22uF is selected according to demodulation output of FM IF.(Note 1)
C10	PLL loop filter	Decreasing the value widens capture range; increasing the value delays stereo operation start timing after release of VCO stop.
C11	Improvement in low frequency stereo distortion	(L-R) signal and decoder 38kHz switching signal are phased with each other by a capacitor of 100 to 1000pF (differs with each audio set) connected.
C12	DC cut	
C13	Time constant for muting at V_{CC}-ON mode	Output signal is muted for a certain time after application of power.
C14,15	De-emphasis constant	The values of C14, C15 are determined so that R1·C15=R2·C14=50us(75μs) is yielded.
R1,2	Post amp feedback resistor de-emphasis constant	R1·C15=R2·C14=50us(75μs)
R3,4	LPF input resistor	3.3kohms or greater (If less than this, the maximum outut voltage cannot be obtained.) Wiring between pin 5 and R3 and between pin 8 and R4 must be made as short as possible.
R5,6	LPF output resistor	
R7	Limiting resistor	The value of R7 is determined so that voltage applied to pin 10 becomes a value from 4.3V to V_{CC}-2V (not exceeding 10V).
R8	Limiting resistor	Current flowing into pin 13 must not exceed 30mA.
R9	Limiting resistor	The value of R9 is determined so that voltage applied to pin 15 becomes a value from 3.5V to V_{CC}-3V.
R10	Limiting resistor	The value of R10 is determined so that voltage applied to pin 17 becomes a value from 5V to V_{CC}-2V. For how to obtain R10, refer to VCO stop application mentioned later.

Continued on next page.

LA3401

Continued from preceding page.

Part No.	Description	Remarks
R11	Loop filter	A resistor value from 3.3 to 10kohms is selected according to demodulation output of FM IF (Note 1). Increasing the value widens capture range, but delays stereo operation start timing after release of VCO stop (Note 2).
R12,13	Output DC voltage setting	Post amp output DC voltage $3.3(1+R_1/R12)$ or $3.3(1+R2/R13)$, extension in output dynamic range .
VR1	Separation adjust	Separation is adjusted by changing (L+R) signal level with VR1.
X	Free-running frequency setting	CSB456F11(Murata),KBR-457HS(Kyocera)

Note 1 : For C9, R11 setting, refer to Sample Application Circuit (Note 2) and Note 2 for Using IC.

Note 2 : To advance stereo operation start timing, the value of C10 is decreased. Decreasing the value of C10 narrows capture range. This narrowing also depends on the value of C9. It is recommended to use C10 of 0.47uF or greater.

Pin Voltage, Name, Remarks

Pin No.	Voltage[V]	Pin Name	Remarks
1	3.3	AM input	Input resistor 20kohms
2	3.3	FM input	Input resistor 20kohms
3	3.3	Composite amp output	Output resistor 1kohm
4	3.3	Separation adjust	
5	3.3	Post amp output	L output
6	3.3	Post amp input	Minus input
7	3.3	Post amp input	Minus input
8	3.3	Post amp output	R output
9	3.3	V_{CC}-ON muting	
10	-	FM/AM changeover	Input resistor 80kohms
11	-	Muting output	
12	0	GND	
13	-	Stereo indicator	Open collector
14	0 or 4.9	Changeover mute	Gnd through a capacitor of 0.01μF or greater
15	-	Muting	Input resistor 80kohms
16	2.7	Pilot sync detect filter	
17	2.7	Pilot sync detect filter, VCO stop	
18	2.7	PLL input	
19	2.7	Loop filter	
20	2.7	Loop filter	
21	-	OSC	-4.2V
22	Vcc	Power supply	-2.5V

Note for Using IC

1. Ceramic resonator

(1) Shown below are ceramic resonators recommended for use in the LA3401.

Type No.	Supplier
CSB456F11	Murata
KBR-457HS	Kyocera

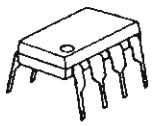
NJM2068

LOW-NOISE DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2068 is a high performance, low noise dual operational amplifier. This amplifier features popular pin-out, superior noise performance, and superior total harmonic distortion. This amplifier also features guaranteed noise performance with substantially higher gain-bandwidth product and slew rate, which far exceeds that of the 4558 type amplifier. The specially designed low noise input transistors allow the NJM2068 to be used in very low noise signal processing applications such as audio preamplifiers and servo error amplifier.

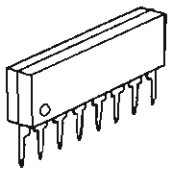
■ PACKAGE OUTLINE



NJM2068D

NJM2068M

NJM2068V

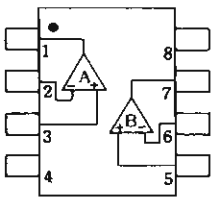


NJM2068L

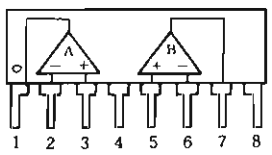
■ FEATURES

- Operating Voltage (±4V~±18V)
- Low Total Harmonic Distortion (0.001% typ.)
- Low Noise Voltage (FLAT+JISA,0.56μV typ.)
- High Slew Rate (6V/μs typ.)
- Unity Gain Bandwidth (27MHz @ f=10kHz)
- Package Outline DIP8,DMP8,SIP8,SSOP8
- Bipolar Technology

■ PIN CONFIGURATION



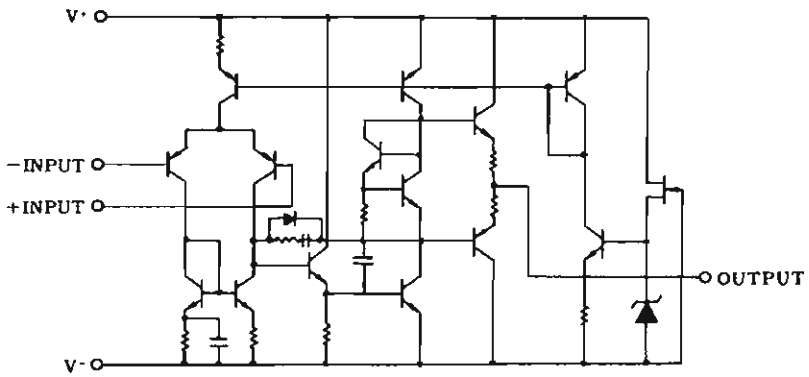
NJM2068D
NJM2068M
NJM2068V



NJM2068L

PIN FUNCTION
1.A OUTPUT
2.A –INPUT
3.A +INPUT
4.V⁻
5.B +INPUT
6.B –INPUT
7.B OUTPUT
8.V⁺

■ EQUIVALENT CIRCUIT (1/2 Shown)



CMOS LSI

SANYO No.2294A

LC7821,7822,7823

Analog Function Switch

Use

- Serial data-controlled function select switch suited for use in amplifiers, receivers.

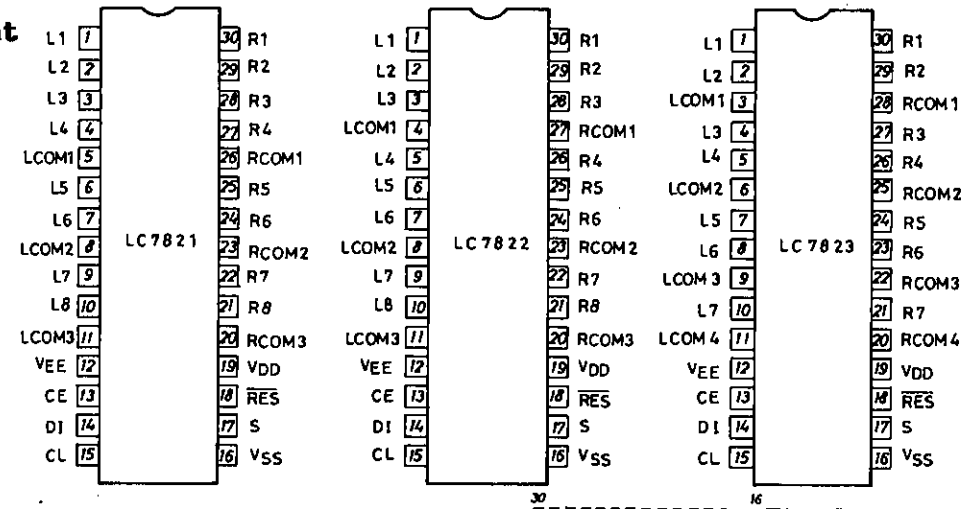
Features

- Analog switches of 8 channels x 2 (LC7823: 7 channels x 2) are contained. Three types are available according to the internal connection.
- Control is exercised by serial data. The LC7821,7822,7823 may be interfaced with a microcomputer (5V-operated) easily.
- Even if two ICs of the same type are used, they may be connected to the common bus line because the S (selector) pin is provided.
- Reset pin used to turn OFF all analog switches
- Wide dynamic range because of ±20V breakdown voltage

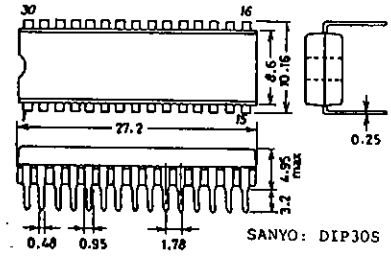
Absolute Maximum Ratings at Ta=25°C

				unit
Maximum Supply Voltage	$V_{DD}max$	V_{DD}	-0.3 to +20	V
	$V_{EE}max$	V_{EE}	-20 to +0.3	V
Maximum Input Voltage	V_I1	DI,CL,CE,S,$\overline{RES}$	-0.3 to +20	V
	V_I2	L1toL8,R1toR8, LCOM1 to LCOM4, RCOM1 to RCOM4	V_{EE}-0.3toV_{DD}+0.3	V
Analog Switch ON-State Voltage Difference	ΔV_{ON}	Switch ON	0.5	V
Allowable Power Dissipation	Pdmax	Ta≦75°C	100	mW
Operating Temperature	Topr		-30 to +75	°C
Storage Temperature	Tstg		-40 to +125	°C

Pin Assignment

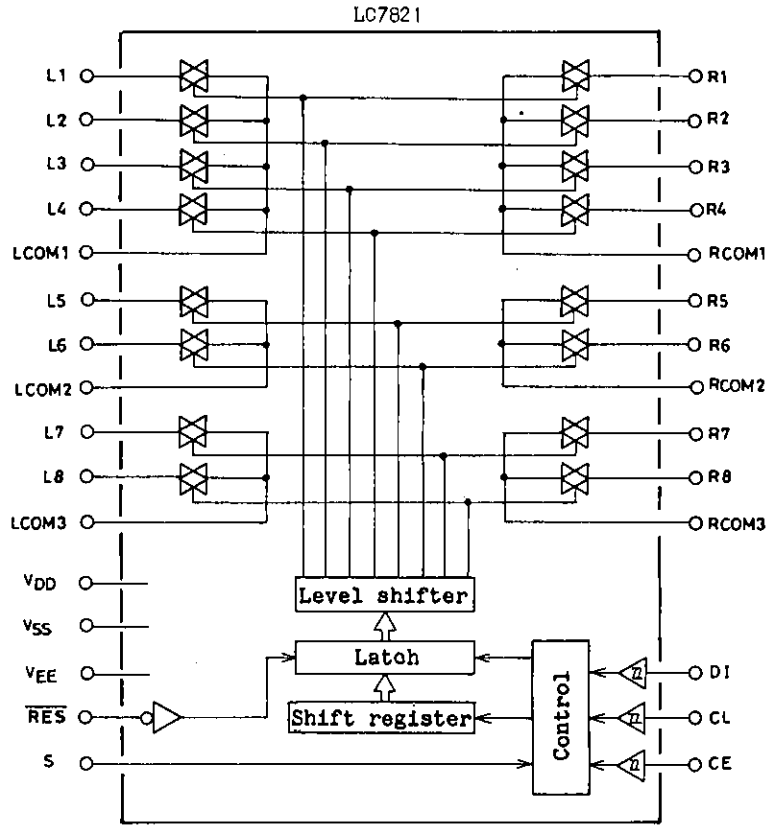


Package Dimensions 3047A
(unit: mm)

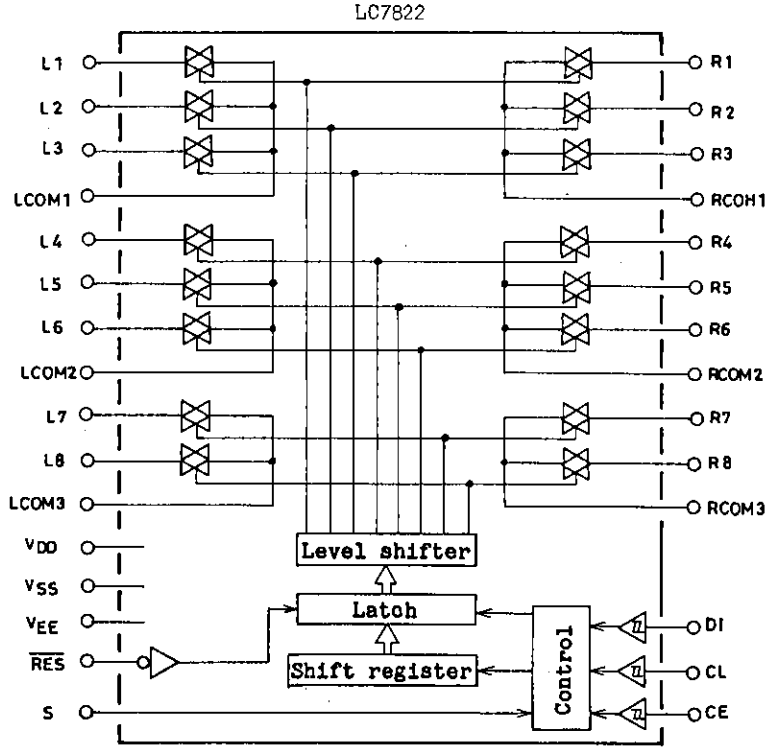


Equivalent Circuit Block Diagram

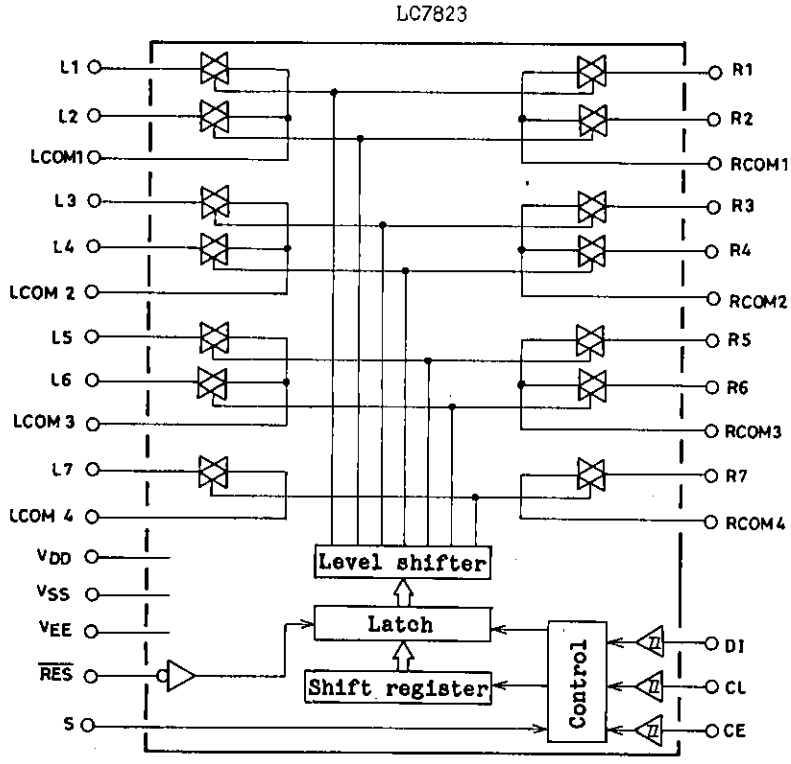
LC7821



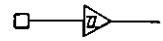
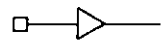
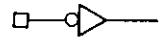
LC7822



Equivalent Circuit Block Diagram



Pin Description

Pin Name	I/O	Internal Equivalent Circuit	Function
V_{DD},V_{SS},V_{EE}			Power supply pins
L1toL8,R1toR8, LCOM1toLCOM4, RCOM1toRCOM4		See Block Diagram.	Input/output pins for analog switches.
CL,DI,CE	I		Serial data input pins (Schmitt buffer) CL --- Clock input pin DI --- Data input pin CE --- Chip enable pin
S	I		Select pin in the two ICs-used mode When the S pin is brought to "L" or "H" level, the addresses will become as shown below.
$\overline{RES}$	I		Reset pin When power is applied, the state of the analog switches will be indeterminate. When this pin is brought to "L" level, all analog switches will be turned OFF.

Type No.	S Pin	Address			
		A_0	A_1	A_2	A_3
LC7821	L	0	1	0	1
	H	1	1	0	1
LC7822	L	0	0	1	1
	H	1	0	1	1
LC7823	L	0	1	1	1
	H	1	1	1	1

Ordering number : EN4758B

CMOS LSI

LC7218, 7218M, 7218JM

PLL Frequency Synthesizer for Electronic Tuning in AV Systems

Overview

The LC7218, LC7218M and LC7218JM are PLL frequency synthesizers for electronic tuning. The LC7218, LC7218M and LC7218JM are optimal for AM/FM tuner circuits that require high mounting densities.

Features

- These products feature a rich set of built-in functions for AV applications, including reference frequency and unlock detection circuits, I/O ports and a general-purpose counter.

Functions

- Programmable dividers
  - — FMIN pin: 130 MHz at 70 mVrms and 160 MHz at 100 mVrms input (built-in prescaler)
  - — AMIN pin: Pulse swallower and direct division techniques
- Reference frequencies: Ten selectable frequencies: 1, 5, 9, 10, 3.125, 6.25, 12.5 25, 50 and 100 kHz
- Output ports: 7 pins
  Complementary outputs: 2 pins
  N-channel open drain outputs: 5 pins
- Input ports: 2 pins
- General-purpose counter: For measuring IF and other signals (Also used for station detection when functioning as an IF counter.)
  - — HCTR pin: Frequency measurement (for inputs up to 70 MHz)
  - — LCTR pin: Frequency and period measurement
- PLL unlock detection circuit
  Detects phase differences of 0.55, 1.11, 2.22 and 3.33 µs.
- Controller clock output: 400 kHz
- Clock time base output: 8 Hz
- Serial data I/O
  - — Supports CCB format communication with the system controller.
- Package: LC7218: DIP24S
  LC7218M: MFP24
  LC7218JM: MFP24S

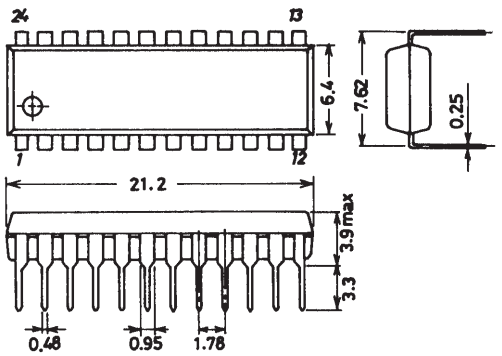
- **CCB is a trademark of SANYO ELECTRIC CO., LTD.**
- **CCB is SANYO's original bus format and all the bus addresses are controlled by SANYO.**

Package Dimensions

unit: mm

3067-DIP24S

[LC7218]



SANYO: DIP24S

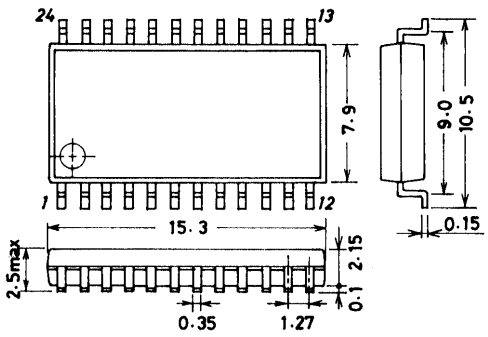
LC7218, 7218M, 7218JM

Package Dimensions

unit: mm

3045B-MFP24

[LC7218M]

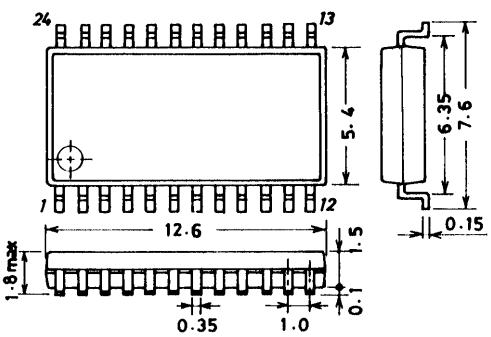


SANYO: MFP24

unit: mm

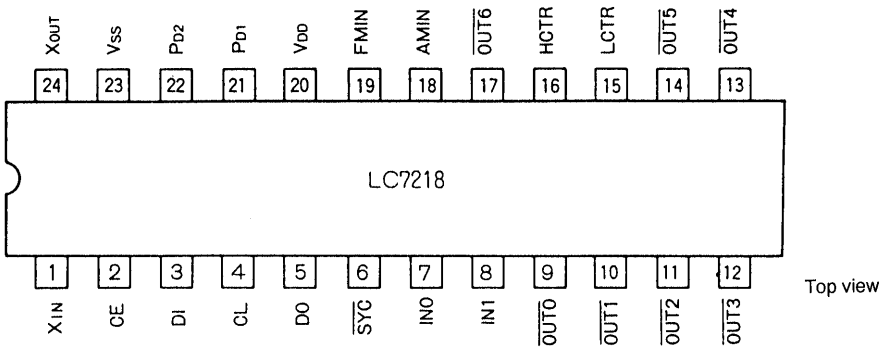
3112-MFP24S

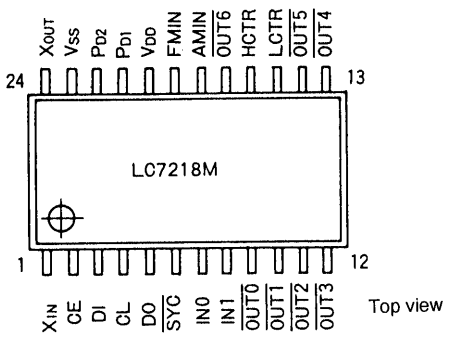
[LC7218JM]

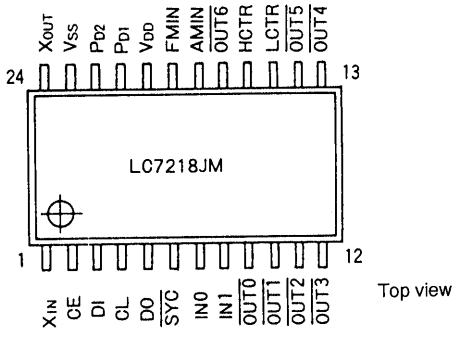


SANYO: MFP24S

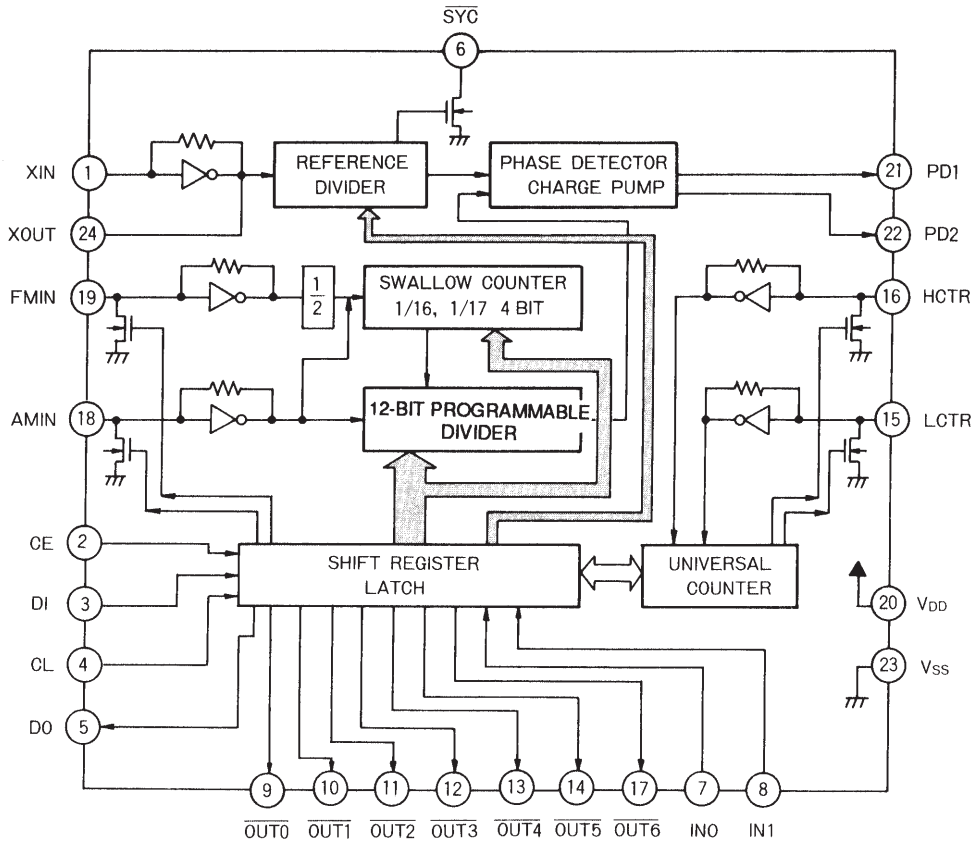
Pin Assignments

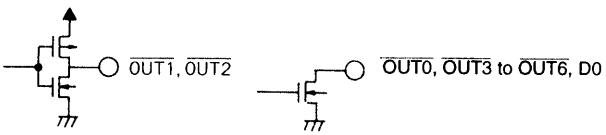




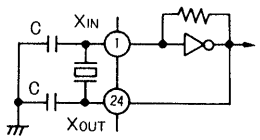


Block Diagram





Note: Crystal oscillator example: 7.200 MHz, CL16pF
(C = 27 pF)
- LN-X-0702(NR-18 type)
- LN-P-0001 (AT-51 type)



Manufactured by:
NIHON DEMPA KOGYO CO., LTD.

Pin Symbols

XIN, XOUT:	Crystal oscillator (7.2 MHz)
FMIN, AMIN:	Local oscillator signal input
CE, CL, DI, DO:	Serial data I/O
$\overline{OUT0}$ to $\overline{OUT6}$:	Output ports
IN0, IN1:	Input ports
HCTR, LCTR:	General-purpose counter inputs
PD1, PD2:	Charge pump outputs
$\overline{SYC}$:	Control clock (400 kHz)

Specifications

Absolute Maximum Ratings at Ta = 25°C, V_{SS} = 0 V

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{DD} max	V_{DD}	–0.3 to +7.0	V
Input voltage	V_{IN} (1)	CE, CL, DI, IN0, IN1	–0.3 to +7.0	V
	V_{IN} (2)	Input pins other than V_{IN} (1)	–0.3 to V_{DD} + 0.3	V
Output voltage	V_{OUT} (1)	DO, $\overline{SYC}$	–0.3 to +7.0	V
	V_{OUT} (2)	$\overline{OUT1}$, $\overline{OUT2}$	–0.3 to V_{DD} + 0.3	V
	V_{OUT} (3)	$\overline{OUT3}$ to $\overline{OUT6}$, $\overline{OUT0}$	–0.3 to +15	V
	V_{OUT} (4)	Output pins other than V_{OUT} (1), V_{OUT} (2) and V_{OUT} (3)	–0.3 to V_{DD} + 0.3	V
Allowable power dissipation	Pd max	Ta ≤ 85°C :LC7218	350	mW
		:LC7218M	300	
		:LC7218JM	200	
Operating temperature	Topr		–40 to +85	°C
Storage temperature	Tstg		–55 to +125	°C

Pin Functions

Pin No.	Symbol	I/O	Type	Function
1 24	X_{IN} X_{OUT}	Input Output	Xtal OSC	• Connections for a 7.2 MHz crystal oscillator
19	FMIN	Input	Local oscillator signal input	• FMIN is selected when DV in the serial input data is set to 1. • Input frequency range: 10 to 130 MHz (70 mVrms minimum) • The signal passes through an internal divide-by-two prescaler and is then supplied to the swallow counter. • Although the divisor setting is in the range 256 to 65,536, the actual divisor will be twice the set value due to the presence of the internal divide-by-two prescaler.
18	AMIN	Input	Local oscillator signal input	• AMIN is selected when DV in the serial input data is set to 0. • When SP in the serial input data is set to 1: — Input frequency range: 2 to 40 MHz (70 mVrms minimum). — The signal is supplied directly to the swallow counter without passing through the internal divide-by-two prescaler. — The divisor setting is in the range 256 to 65,536 and the actual divisor will be the value set. • When SP in the serial input data is set to 0: — Input frequency range: 0.5 to 10 MHz (70 mVrms minimum). — The signal is supplied directly to a 12-bit programmable divider. — The divisor setting is in the range 4 to 4,096 and the actual divisor will be the value set.
21 22	PD1 PD2	Three-state	Charge pump outputs	• PLL charge pump outputs. High levels are output from PD1 and PD2 when the local oscillator frequency divided by n is higher than the reference frequency, and low levels are output when that frequency is lower than the reference frequency. These pins go to the floating state when the frequencies agree.
6	$\overline{SYC}$	N-channel open drain	Controller clock	• SYC is a controller clock source. The LC7218 outputs a 400 kHz 66% duty signal from this pin after power is applied.
20	V_{DD}	—	Power supply	• The LC7218 power supply pin. A voltage of between 4.5 and 6.5 V must be provided when the PLL is operating. The supply voltage can be lowered to 3.5 V when only operating the crystal oscillator circuit to acquire the controller clock and the clock time base outputs.
23	V_{SS}	—	Ground	• The LC7218 ground pin
2	CE	Input*	Chip enable	• This pin must be set high when inputting serial data (via DI) or when outputting serial data (via DO).
4	CL	Input*	Clock	• The clock input used for data signal synchronization during serial data input (via DI) or output (via DO).
3	DI	Input*	Input data	• Input pin used when transferring serial data from the controller to the LC7218. • A total of 36 bits of data must be supplied to set up the LC7218 initial state.
5	DO	Output (N-channel open drain)	Output data	• Output pin used when transferring serial data to the controller from the LC7218. • A total of 28 bits from an internal shift register can be output in synchronization with the CL signal.

Note: * The high and low level input voltages for the CE, CL, DI, IN0 and IN1 pins are V_{IH} = 2.2 to 6.5 V and V_{IL} = 0 to 0.7 V, regardless of the power supply voltage V_{DD}.

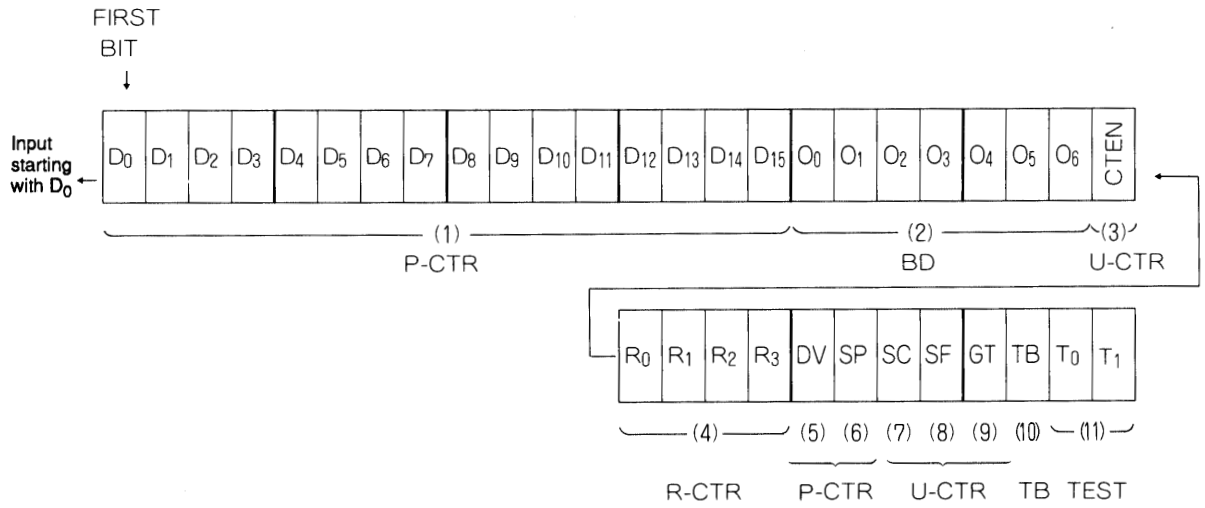
Continued on next page.

Continued from preceding page.

Pin No.	Symbol	I/O	Type	Function
9 10 11 12 13 14 17	$\overline{OUT0}$ $\overline{OUT1}$ $\overline{OUT2}$ $\overline{OUT3}$ $\overline{OUT4}$ $\overline{OUT5}$ $\overline{OUT6}$	Output*1	Output port	• These pins latch bits O_0 to O_6 in the serial data transferred from the controller, invert that data and output the inverted data in parallel. • The $\overline{OUT0}$ pin can also be used to output an 8 Hz clock time base signal. (When TB is 1.) • $\overline{OUT1}$ and $\overline{OUT2}$ are complementary outputs. • $\overline{OUT0}$, $\overline{OUT3}$, $\overline{OUT4}$, $\overline{OUT5}$ and $\overline{OUT6}$ are N-channel open drain outputs that can handle up to 13 V.
7 8	IN0 IN1	Input*2	Input port	• The values of the IN0 and IN1 input ports can be converted from parallel to serial and output from the DO output pin.
16	HCTR	Input	General-purpose counter Frequency measurement signal input pin	• HCTR is selected when SC in the serial input data is set to 1. • Input frequency range: 10 to 60 MHz (70 mVrms minimum) • The signal is supplied to a general-purpose 20-bit binary counter after passing through a divide-by-eight circuit. Therefore, the value of the counter is 1/8 of the frequency actually input to HCTR. • When HCTR is selected the LC7218 will function in frequency measurement mode and the measurement period can be selected to be either 60 or 120 ms. (GT = 0: 60 ms, 1: 120 ms) • The result of the measurement (the value of the general-purpose counter) can be output MSB first from the DO output pin.
15	LCTR	Input	General-purpose counter Frequency or period measurement signal input pin	• LCTR is selected when SC in the serial input data is set to 0. • When SF in the serial input data is set to 1: — Frequency measurement mode is selected. — Input frequency range: 15 to 500 kHz (70 mVrms minimum). — The signal is supplied directly to the general-purpose counter without passing through the internal divide-by-eight circuit. — The measurement period is the same as for HCTR. • When SF in the serial input data is set to 0: — Period measurement mode is selected. — Input frequency range: 1 Hz to 20 kHz (V_{IH} = 0.7 V_{DD} minimum, V_{IL} = 0.3·V_{DD} maximum) — The measurement can be selected to be for one or two cycles. If two cycle measurement is selected the input frequency range becomes 2 Hz to 20 kHz. (GT = 0: one cycle, 1: two cycles) • Measurement results are output in the same manner as HCTR measurement results.

Note: *1. Since the output port states are undefined when power is first applied, transfer the control data quickly.
*2. The high and low level input voltages for the CE, CL, DI, IN0 and IN1 pins are V_{IH} = 2.2 to 6.5 V and V_{IL} = 0 to 0.7 V, regardless of the power supply voltage V_{DD}.

Control Data Format (serial input data)


FIRST BIT
Input starting with D0
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 O0 O1 O2 O3 O4 O5 O6 CTEN
(1) P-CTR
(2) BD
(3) U-CTR
R0 R1 R2 R3 DV SP SC SF GT TB T0 T1
(4) R-CTR
(5) (6) P-CTR
(7) (8) U-CTR
(9) TB
(10) (11) TEST

I²C BUS compatible serial EEPROM

BR24C01A-W / BR24C01AF-W / BR24C01AFJ-W / BR24C01AFV-W / BR24C02-W / BR24C02F-W / BR24C02FJ-W / BR24C02FV-W / BR24C04-W / BR24C04F-W / BR24C04FJ-W / BR24C04FV-W

The BR24C01A-W, BR24C02-W, and BR24C04-W series are 2-wire (I²C BUS type) serial EEPROMs which are electrically programmable.

∗ I²C BUS is a registered trademark of Philips.

●Applications

VCRs, TVs, printers, car stereos, cordless telephones, short wave radios, programmable DIP switches

●Features

1) 128×8bits (1k) serial EEPROM.
(BR24C01A-W / AF-W / AFJ-W / AFV-W)
256×8bits (2k) serial EEPROM.
(BR24C02-W / F-W / FJ-W / FV-W)
512×8bits (4k) serial EEPROM.
(BR24C04-W / F-W / FJ-W / FV-W)
2) Two wire serial interface.
3) Operating voltage range : 2.7V~5.5V
4) Low current consumption
Active (at 5V) : 1.5mA (Typ.)
Standby (at 5V) : 0.1μA (Typ.)
5) Auto erase and auto complete functions can be used during write operations.
6) Page write function.
BR24C01A-W / AF-W / AFJ-W / AFV-W : 8 bytes
BR24C02-W / F-W / FJ-W / FV-W : 8 bytes
BR24C04-W / F-W / FJ-W / FV-W : 16 bytes
7) DATA security
Write protect feature
Inhibit to WRITE at low V_{CC}
8) Noise filters at SCL and SDA pins.
9) Address can be incremented automatically during read operations.
10) Compact packages.
11) Rewriting possible up to 100,000 times
12) Data can be stored for ten years without corruption.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Applied voltage	V_{CC}	−0.3~+6.5	V
Power dissipation	Pd	300(SSOP−B8) ∗1	mW
		450(SOP8, SOP−J8) ∗2	
		800(DIP8) ∗3	
Storage temperature	Tstg	−65~+125	°C
Operating temperature	Topr	−40~+85	°C
Input voltage	−	−0.3~V_{CC}+0.3	V

∗1 Reduced by 3.0mW for each increase in Ta of 1°C over 25°C.
∗2 Reduced by 4.5mW for each increase in Ta of 1°C over 25°C.
∗3 Reduced by 8.0mW for each increase in Ta of 1°C over 25°C.

BR24C01A-W / BR24C01AF-W / BR24C01AFJ-W / BR24C01AFV-W / BR24C02-W / BR24C02F-W /

Memory ICs

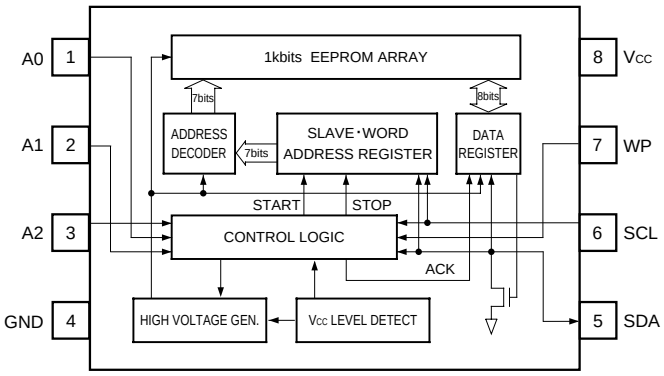
BR24C02FJ-W / BR24C02FV-W / BR24C04-W / BR24C04F-W / BR24C04FJ-W / BR24C04FV-W

●Recommended operating conditions (Ta = 25°C)

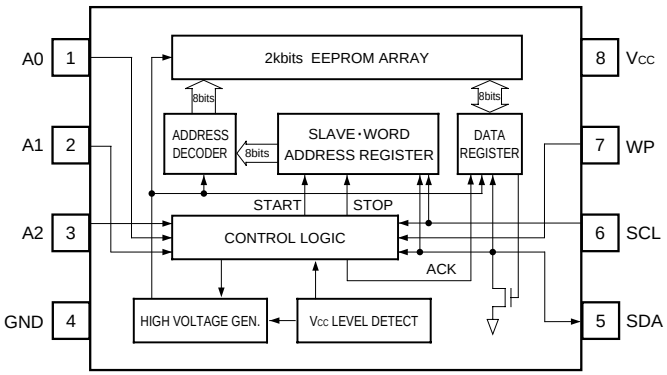
Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	2.7~5.5 (WRITE)	V
		2.7~5.5 (READ)	V
Input voltage	V_{IN}	0~V_{CC}	V

●Block diagram

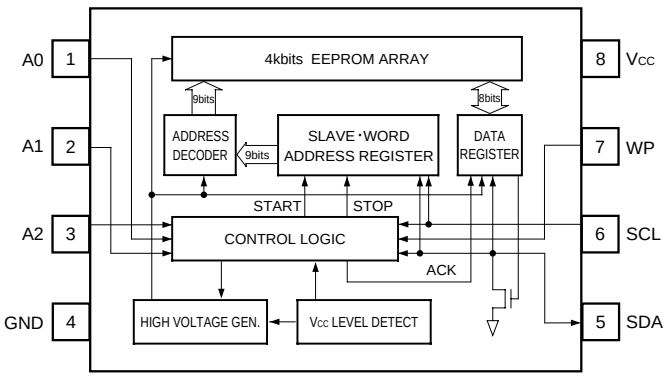
BR24C01A-W / AF-W / AFJ-W / AFV-W



BR24C02-W / F-W / FJ-W / FV-W



BR24C04-W / F-W / FJ-W / FV-W



●Pin descriptions

Pin name	Function
A0, A1, A2	Slave address setting pin
SCL	Serial data clock
SDA	Serial data input / output *
WP	Write protect pin
V_{CC}	Power supply
GND	Ground

* An open drain output requires a pull-up resistor.

Pin name	Function
A0, A1, A2	Slave address setting pin
SCL	Serial data clock
SDA	Serial data input / output *
WP	Write protect pin
V_{CC}	Power supply
GND	Ground

* An open drain output requires a pull-up resistor.

Pin name	Function
A0	N.C.
A1, A2	Slave address setting pin
SCL	Serial data clock
SDA	Serial data input / output *
WP	Write protect pin
V_{CC}	Power supply
GND	Ground

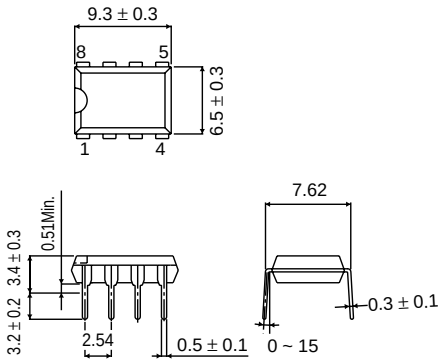
* An open drain output requires a pull-up resistor.

BR24C01A-W / BR24C01AF-W / BR24C01AFJ-W / BR24C01AFV-W / BR24C02-W / BR24C02F-W /

Memory ICs BR24C02FJ-W / BR24C02FV-W / BR24C04-W / BR24C04F-W / BR24C04FJ-W / BR24C04FV-W

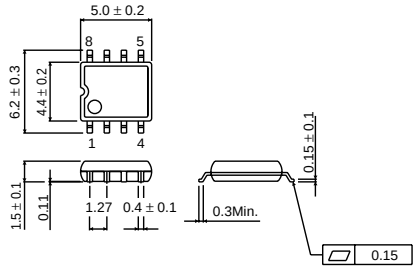
●**External dimensions** (Units : mm)

BR24C01A-W
BR24C02-W
BR24C04-W



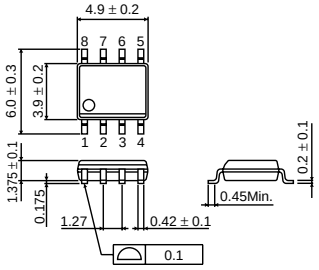
DIP8

BR24C01AF-W
BR24C02F-W
BR24C04F-W



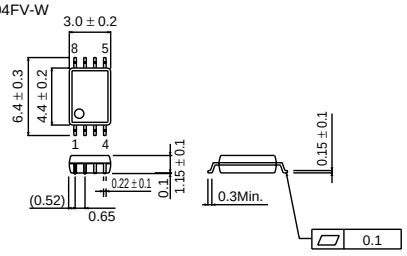
SOP8

BR24C01AFJ-W
BR24C02FJ-W
BR24C04FJ-W



SOP-J8

BR24C01AFV-W
BR24C02FV-W
BR24C04FV-W



SSOP-B8

Monolithic Linear IC

LA1266

AM/FM Tuner System Of Electronic Tuning Type

Functions

FM : IF amplifier, quadrature detector, AF preamplifier, signal meter, IF count outputlifier, tuning indicator drive output (common with stop signal, muting drive output)

AM : RF amplifier, MIX, OSC (with ALC), IF amplifier, detector, AGC, signal meter, tuning indicator drive output (common with stop signal), IF count output, local OSC buffer.

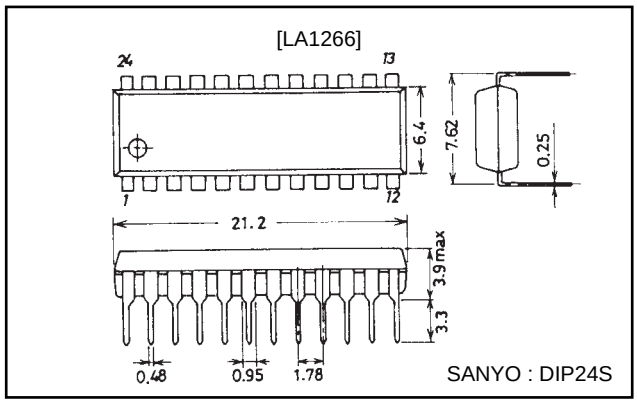
Features

- Minimum number of external parts required.
- Excellent S/N
- Local OSC with ALC
- Local OSC buffer
- Tuning indicator pin (common with narrow-band stop signal and muting drive output)
- Variable stop sensitivity (variable separately for FM, AM)
- Less tweet interference
- Signal meter pin
- IF count output

Package Dimensions

unit : mm

3067-DIP24S



Specifications

Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	Pins 7,8,20	16	V
Flow-in current	I_8	Pin 8	20	mA
Flow-out current	I_{22}	Pin 22	1	mA
	I_{24}	Pin 24	2	mA
Allowable power dissipation	Pd max	Ta≤60°C	700	mW
Operating temperature	Topr		–20 to +70	°C
Storage temperature	Tstg		–40 to +125	°C

Operating Conditions at Ta=25°C

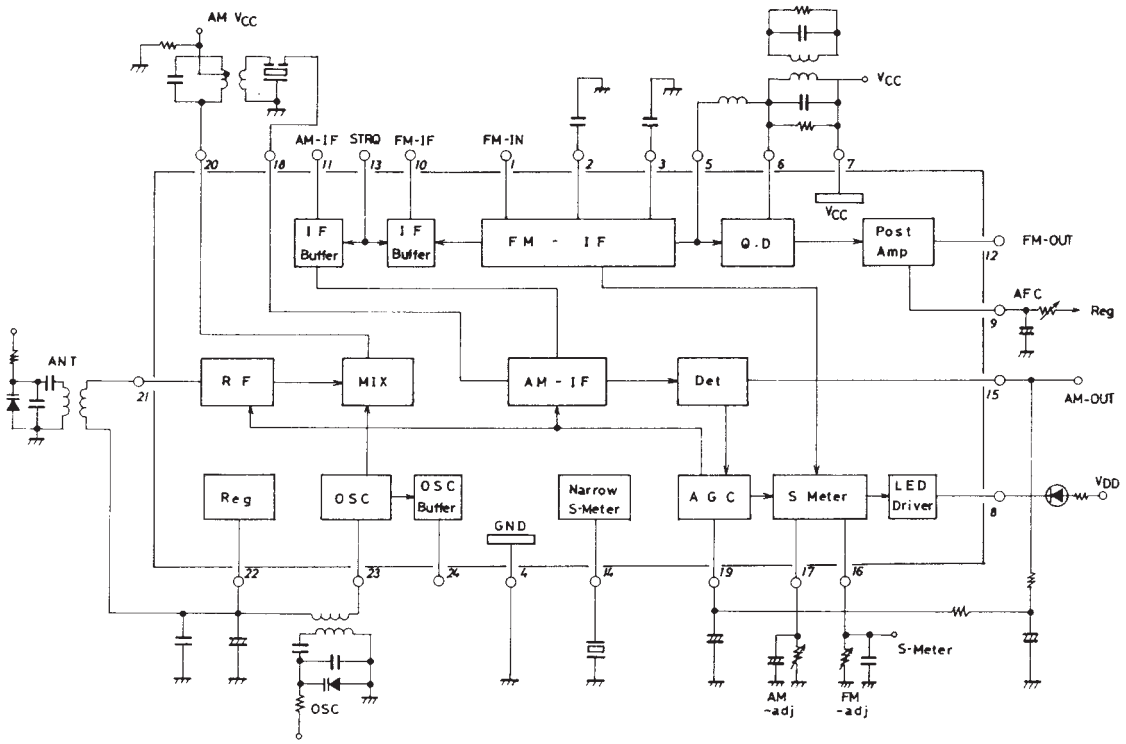
Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		8.5	V
Operating voltage range	V_{CC} op		6 to 14	V

LA1266

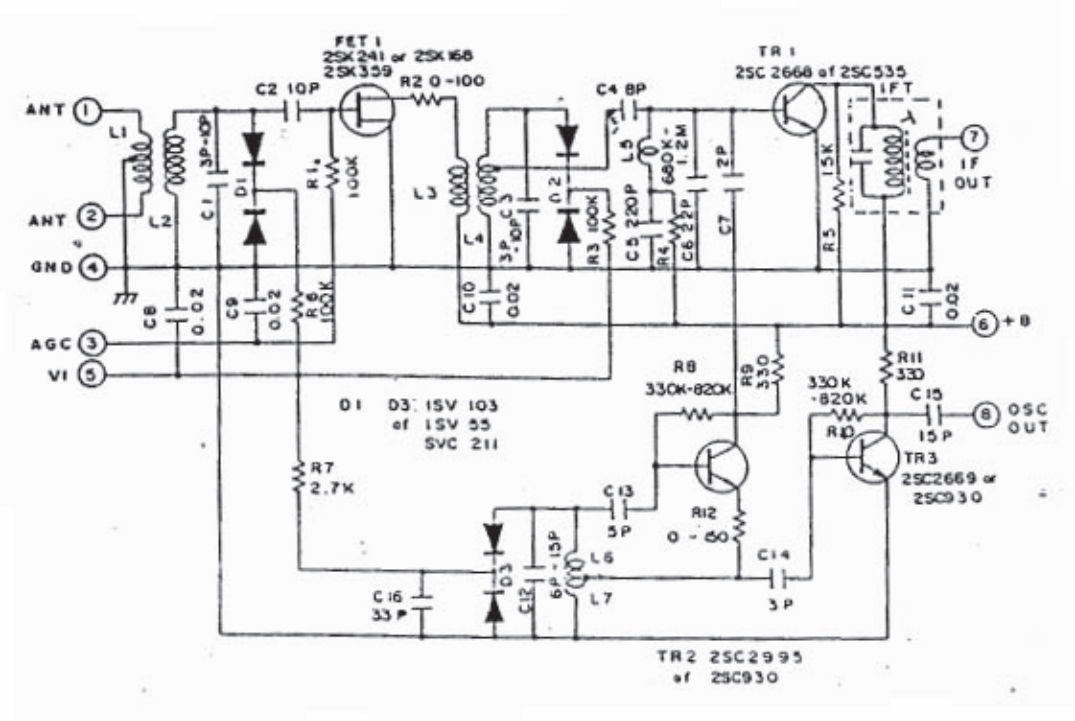
Operating Characteristics at Ta=25°C, V_{CC}=8.5V, See Test Circuit.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[AM : fc=1MHz, fm=1kHz]						
Quiescent current	Icco	No input		22	30	mA
Detection output	V_O1	V_{IN}=20dBμ, 30% mod.	30	60	110	mV
	V_O2	V_{IN}=80dBμ, 30% mod.	90	150	210	mV
Signal to noise ratio	S/N1	V_{IN}=20dBμ	15	19		dB
	S/N2	V_{IN}=80dBμ	49	54		dB
Total harmonic distortion	THD1	V_{IN}=80dBμ, 30% mod.		0.3	1.0	%
	THD2	V_{IN}=107dBμ, 30% mod.		0.3	1.0	%
Signal meter output	$V_{SM}1$	No input	0	0	0.2	V
	$V_{SM}2$	V_{IN}=80dBμ	1.8	2.8	3.5	V
LED drive sensitivity	LED-ON	I_{LED}=1mA	13	23	33	dBm
Local OSC buffer output	V_{OSC}	fosc=1.45MHz	220	280	340	mV
IF buffer output	V_{IF}	V_{IN}=20dBμ	120	180	250	mV
[FM : fc=10.7MHz, fm=1kHz]						
Quiescent current	Icco	No input		29	40	mA
Input limiting sensitivity	–3dBL.S.	3dB down, 100% mod.		31	37	dBμ
Demodulation output	V_O	V_{IN}=100dBμ, 100% mod.	270	390	540	mV
S/N ratio	S/N	V_{IN}=100dBμ	78	84		dB
Total harmonic distortion	THD	V_{IN}=100dBμ, 100% mod.		0.03	0.3	%
Signal meter output	$V_{SM}1$	No input	0	0	0.2	V
	$V_{SM}2$	V_{IN}=100dBμ	1.7	2.3	3.1	V
LED drive sensitivity	LED-ON	I_{LED}=1mA	46	61	76	dBμ
LED drive bandwidth	LED-BW	V_{IN}=100dBμ, I_{LED}=1mA	70	105	140	kHz
AM rejection ratio	AMR	V_{IN}=100dBμ, 100% mod. AM-1kHz, 30% mod.	45	58		dB
IF buffer output	V_{IF}	V_{IN}=50dBμ	110	160	230	mV

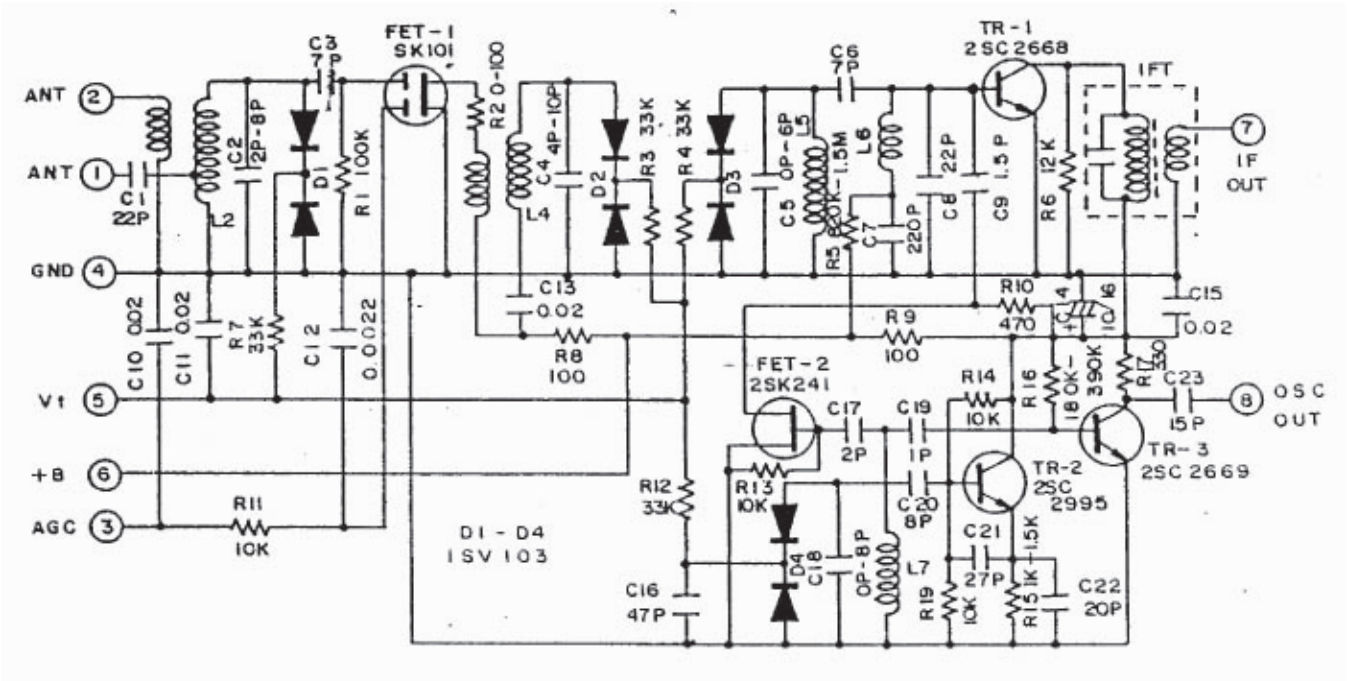
Equivalent Circuit Block Diagram



Front End : FE601 (FTA3-509HA) U.S.A. Version

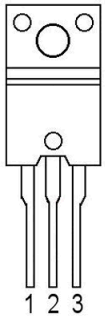


Front End : FE601 (FTA4-460H) E.U. Version



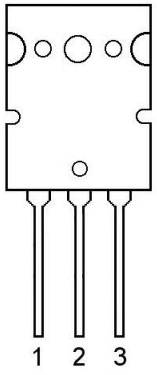
Silicon Transistor

2SA1859 PNP
2SC4883 NPN



1 Base
2 Collector
3 Emitter

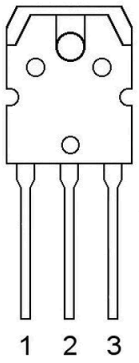
2SA1943
2SC5200



1 Base
2 Collector (Heat Sink)
3 Emitter

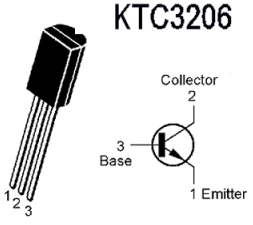
Silicon Transistor

2SA1492
2SC3856

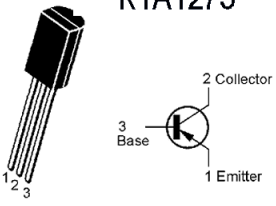


1 Base
2 Collector (Heat Sink)
3 Emitter

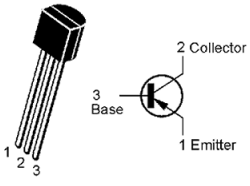
KTC3206



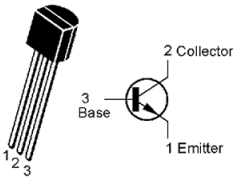
KTA1273

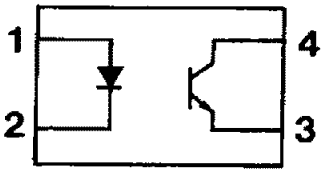


KRA107M
KTA1268
KTA1024



KTC3203
KRC107
KTC3200
KTC3198
KTD1302
KTC3194



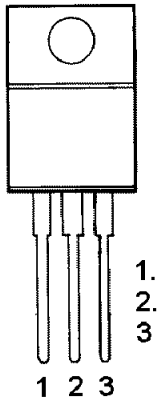


1. Anode
2. Cathode
3. Emitter
4. Collector

2SC4137

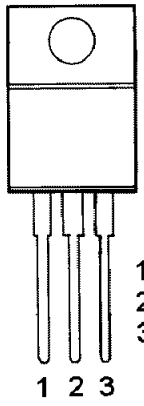
1. Emitter
2. Collector
3. Base

KA7805, 7815



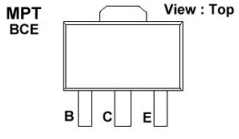
1. IN
2. GROUND
3 OUT

KA7915



1. GROUND
2. IN
3. OUT

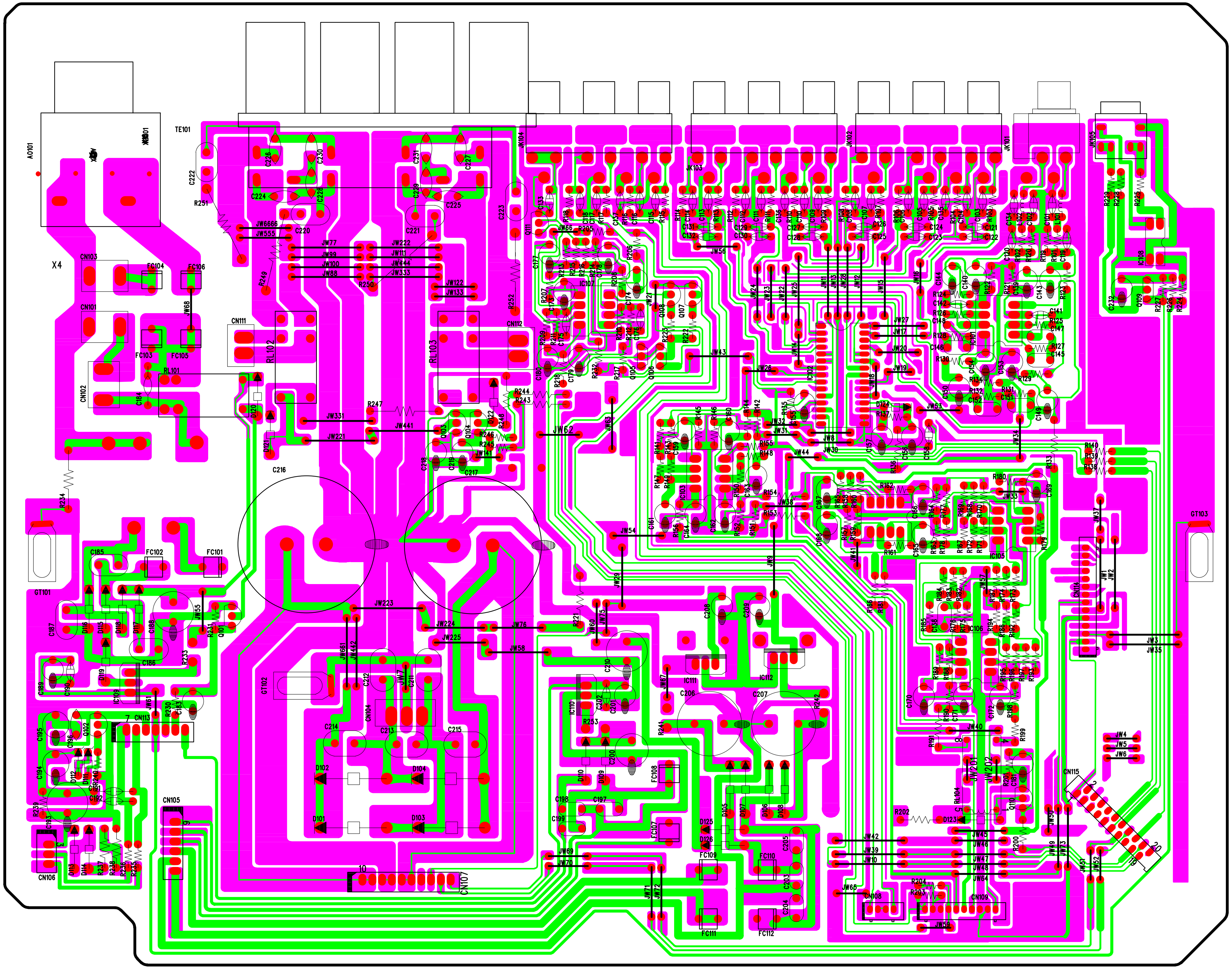
2SA1759



P. C. BOARD
MAIN

hk3375/hk3475

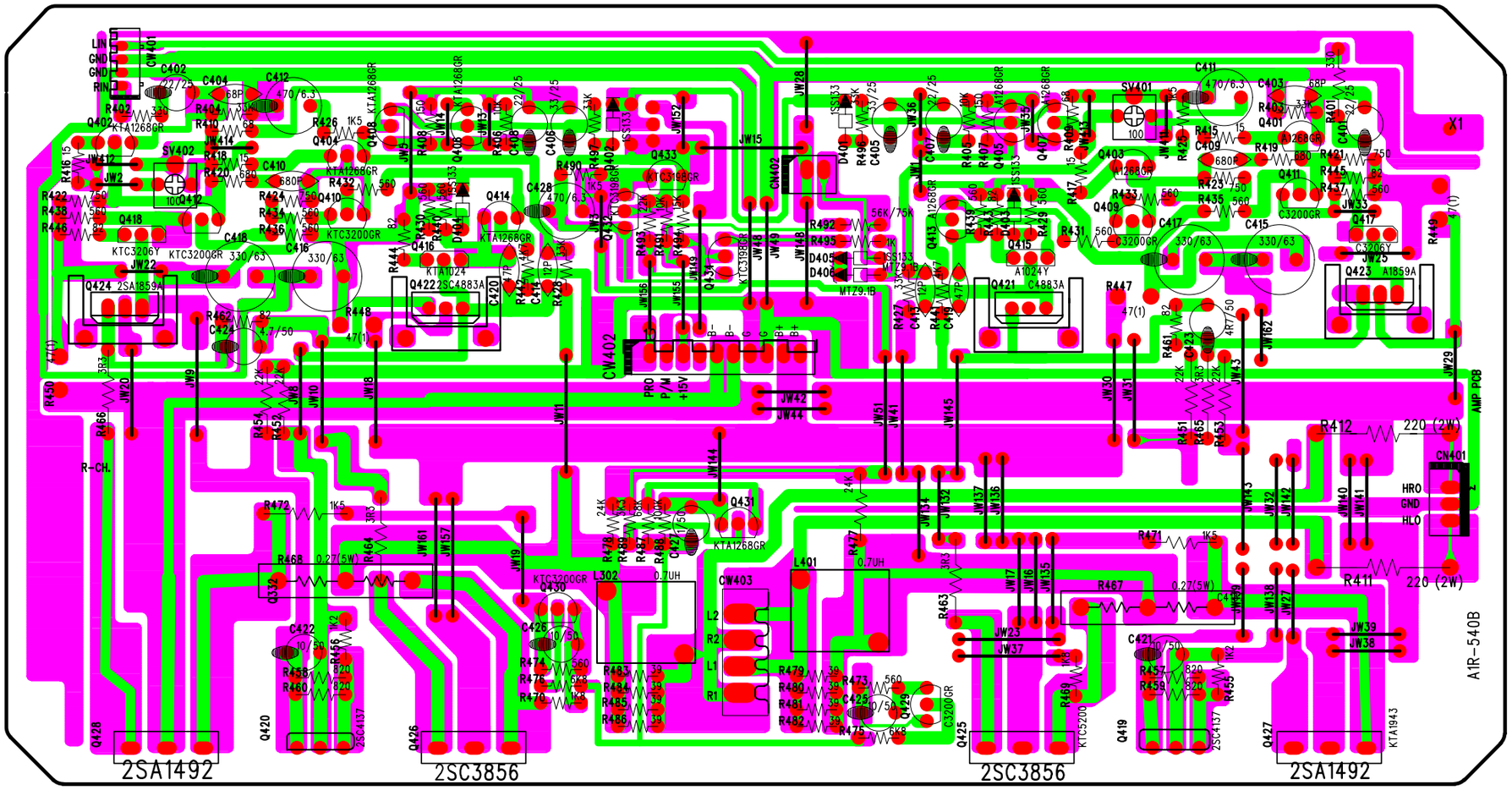
MAIN



P. C. BOARD
AMP

hk3375

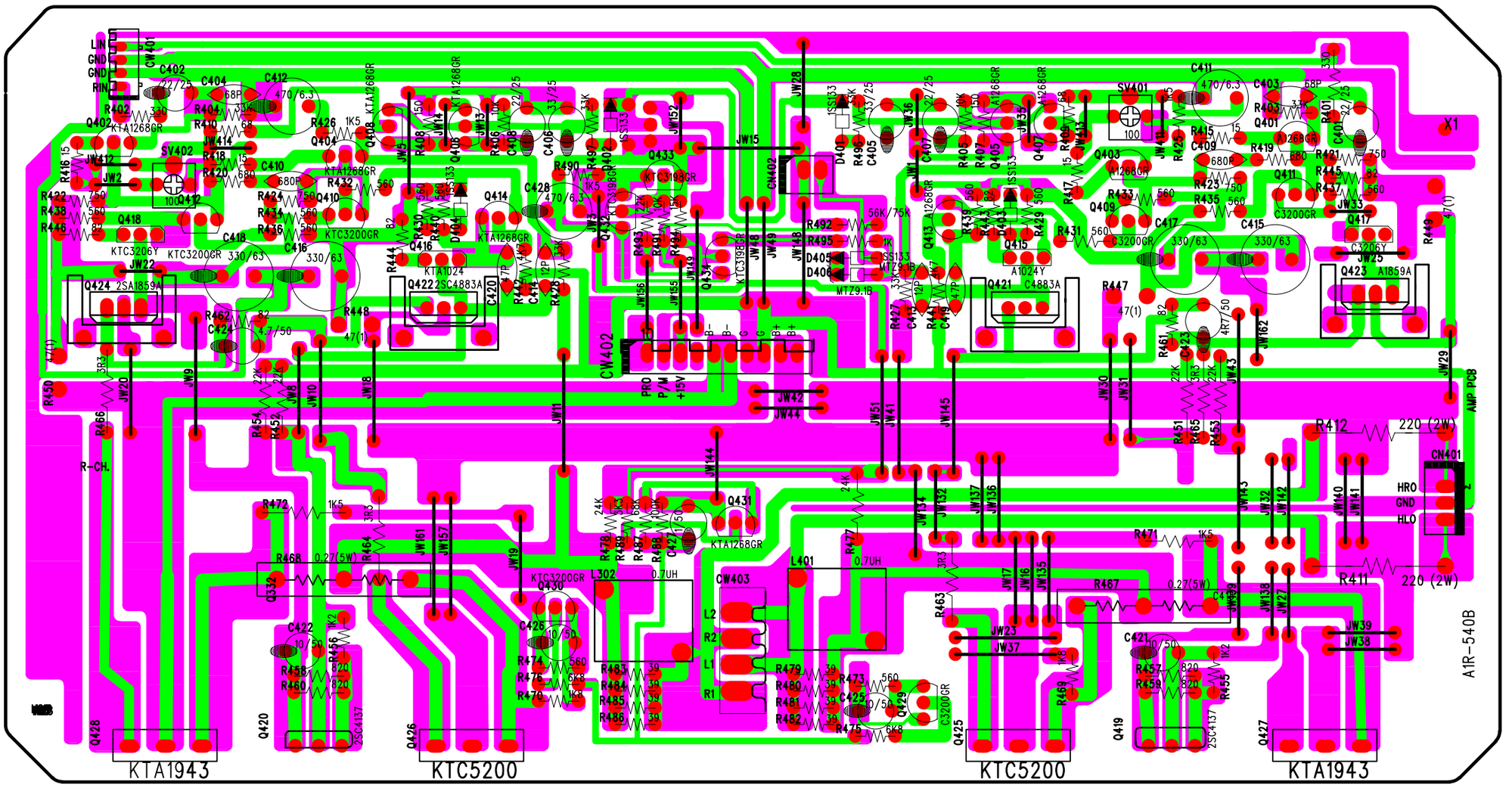
AMP



P. C. BOARD
AMP

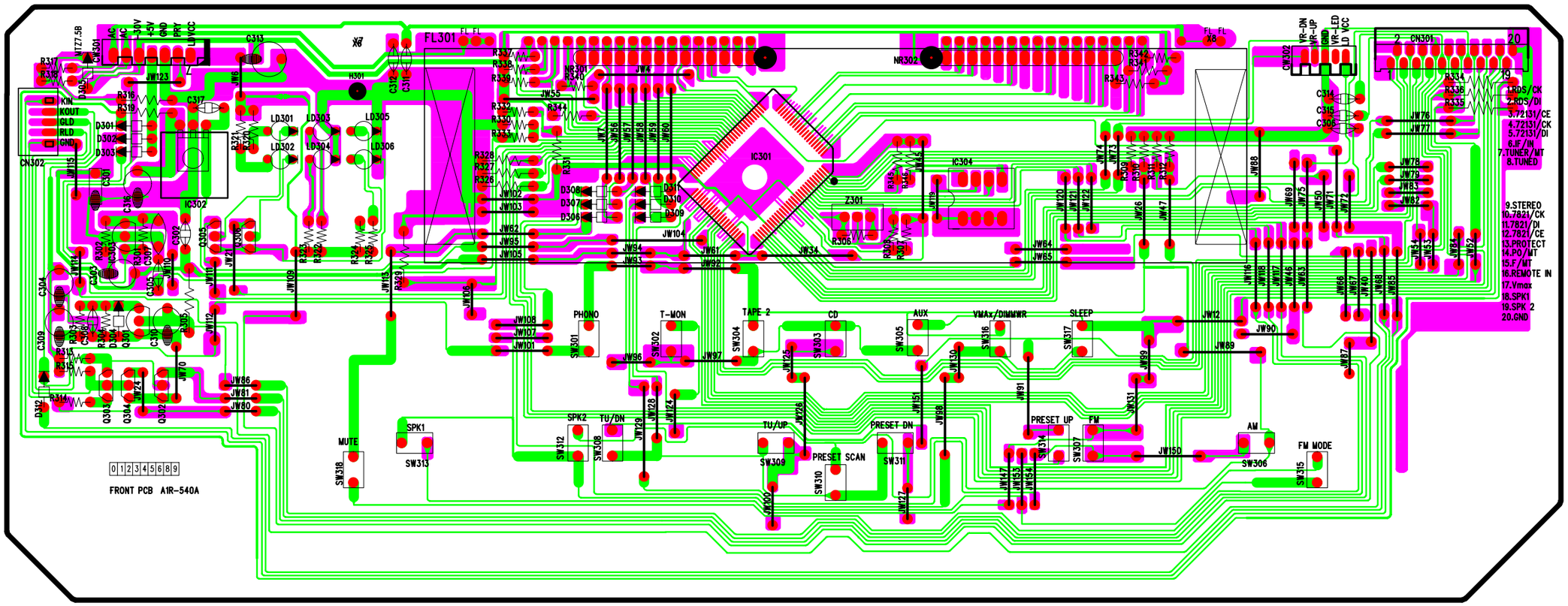
hk3475

AMP



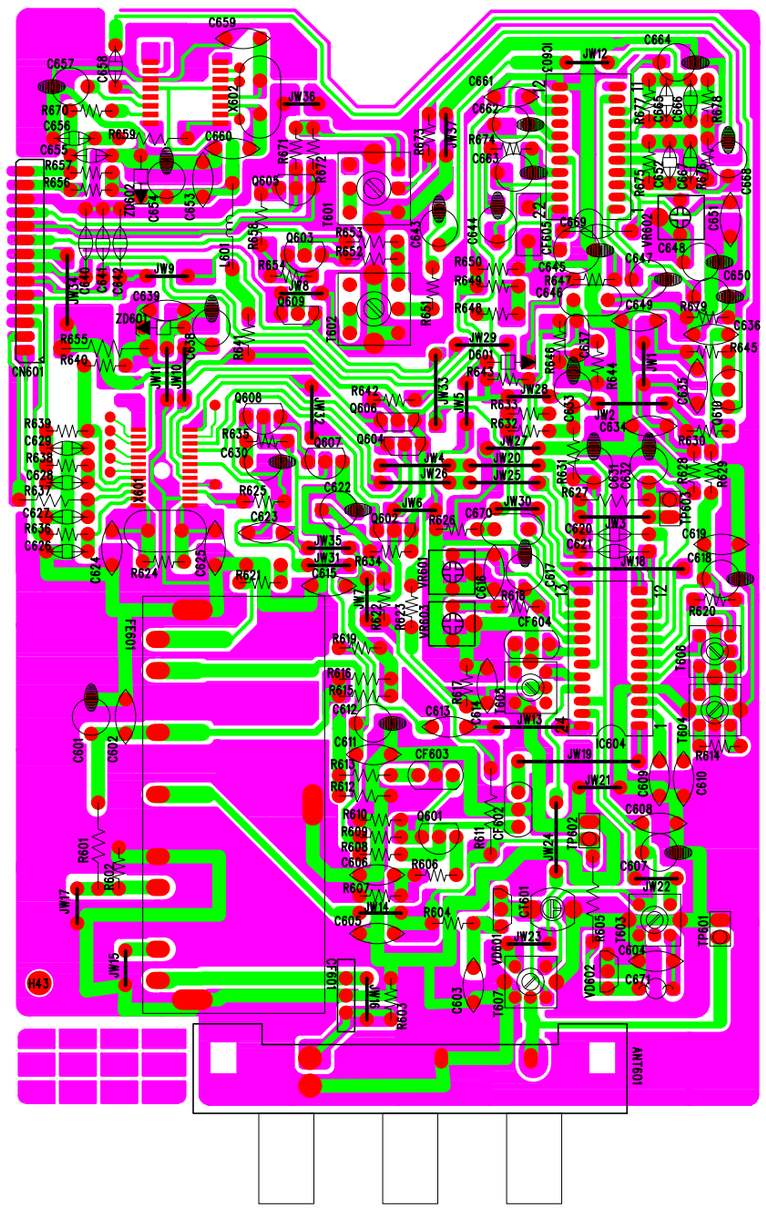
P. C. BOARD
FRONT

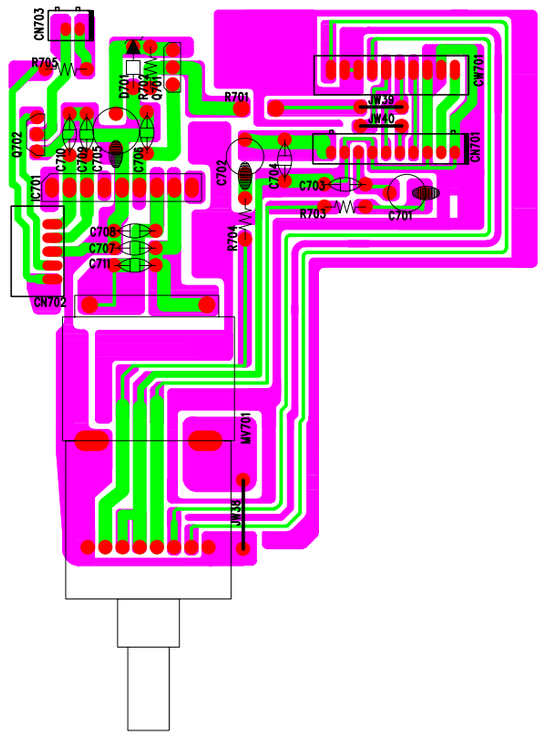
FRONT

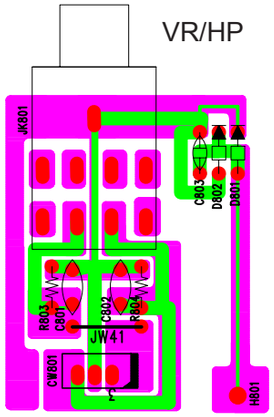


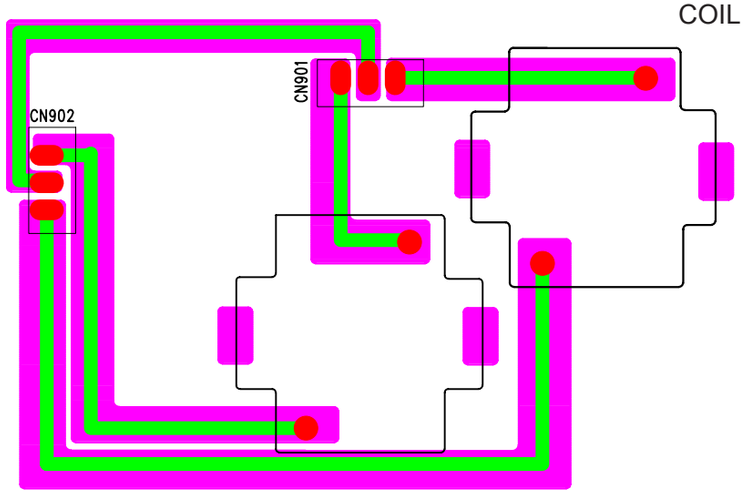
P. C. BOARD
TUNER/VR/HP/COIL

TUNER



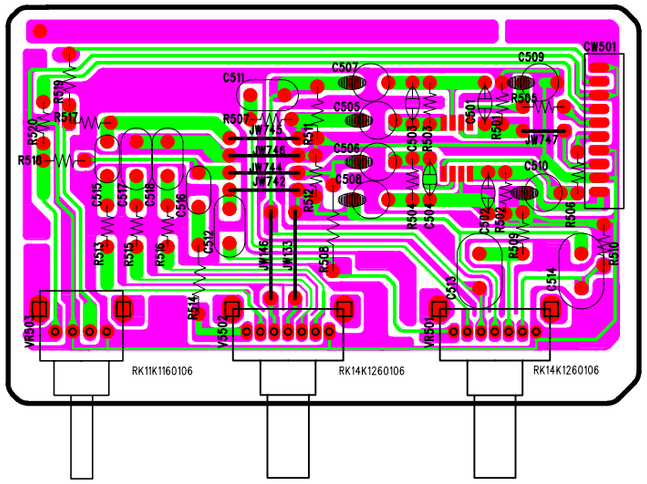




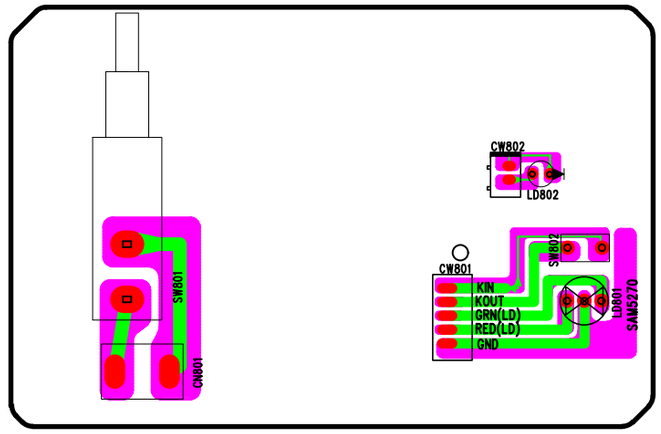


P. C. BOARD
TONE/POWER SW/LED

TONE



POWER SW / LED



SCHEMATIC DIAGRAM
MAIN

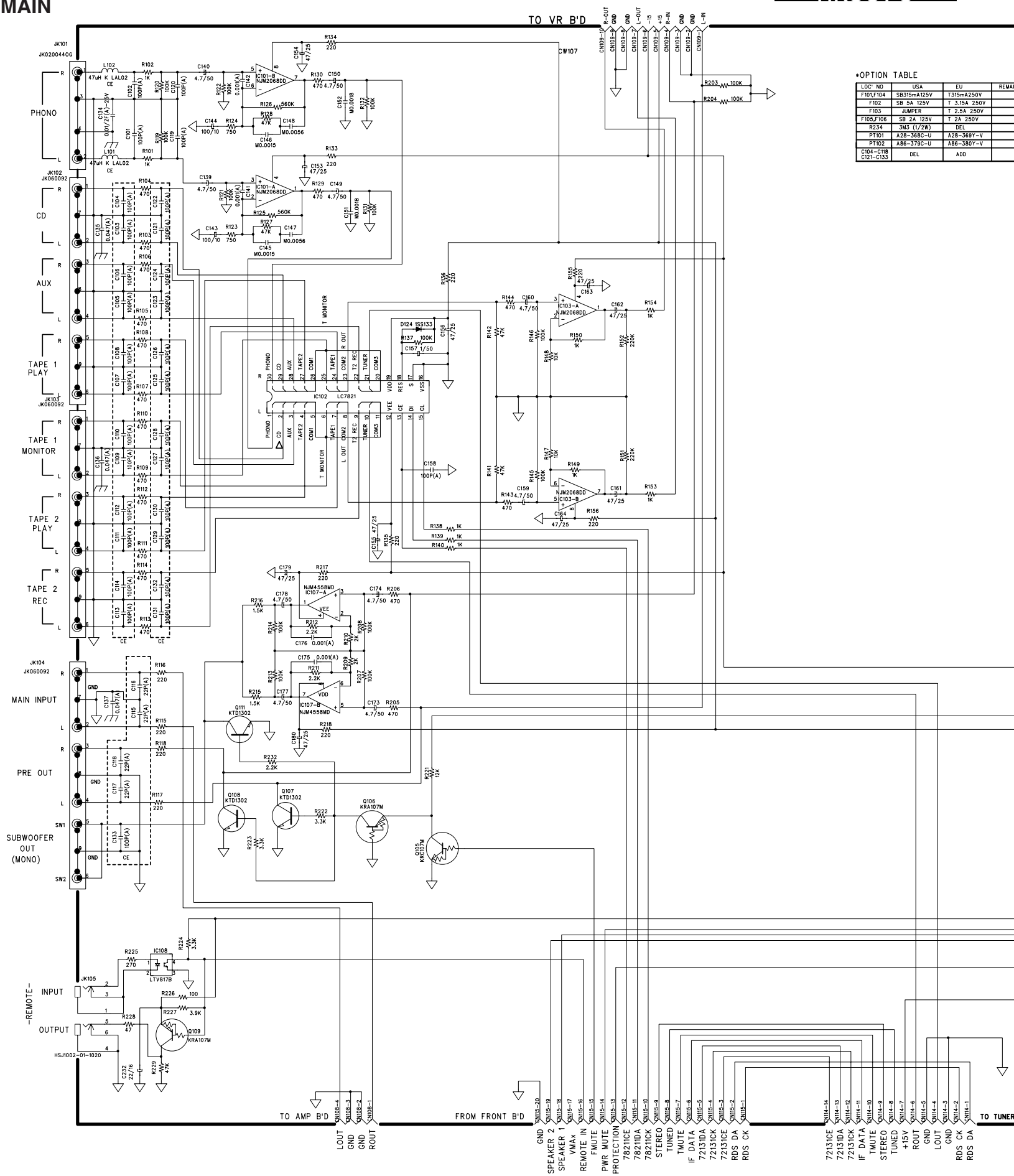
hk3375

*OPTION TABLE

LOC' NO	USA	EU	REMARK
F101,F104	SB315mA125V	T315mA250V	
F102	SB 5A 125V	T 3.15A 250V	
F103	JUMPER	T 2.5A 250V	
F105,F106	SB 2A 125V	T 2A 250V	
R234	3M3 (1/2W)	DEL	
PT101	A28-368C-U	A28-369Y-V	
PT102	A86-379C-U	A86-380Y-V	
C104-C108 C121-C133	DEL	ADD	

SCHEMATIC DIAGRAM
MAIN

hk3375

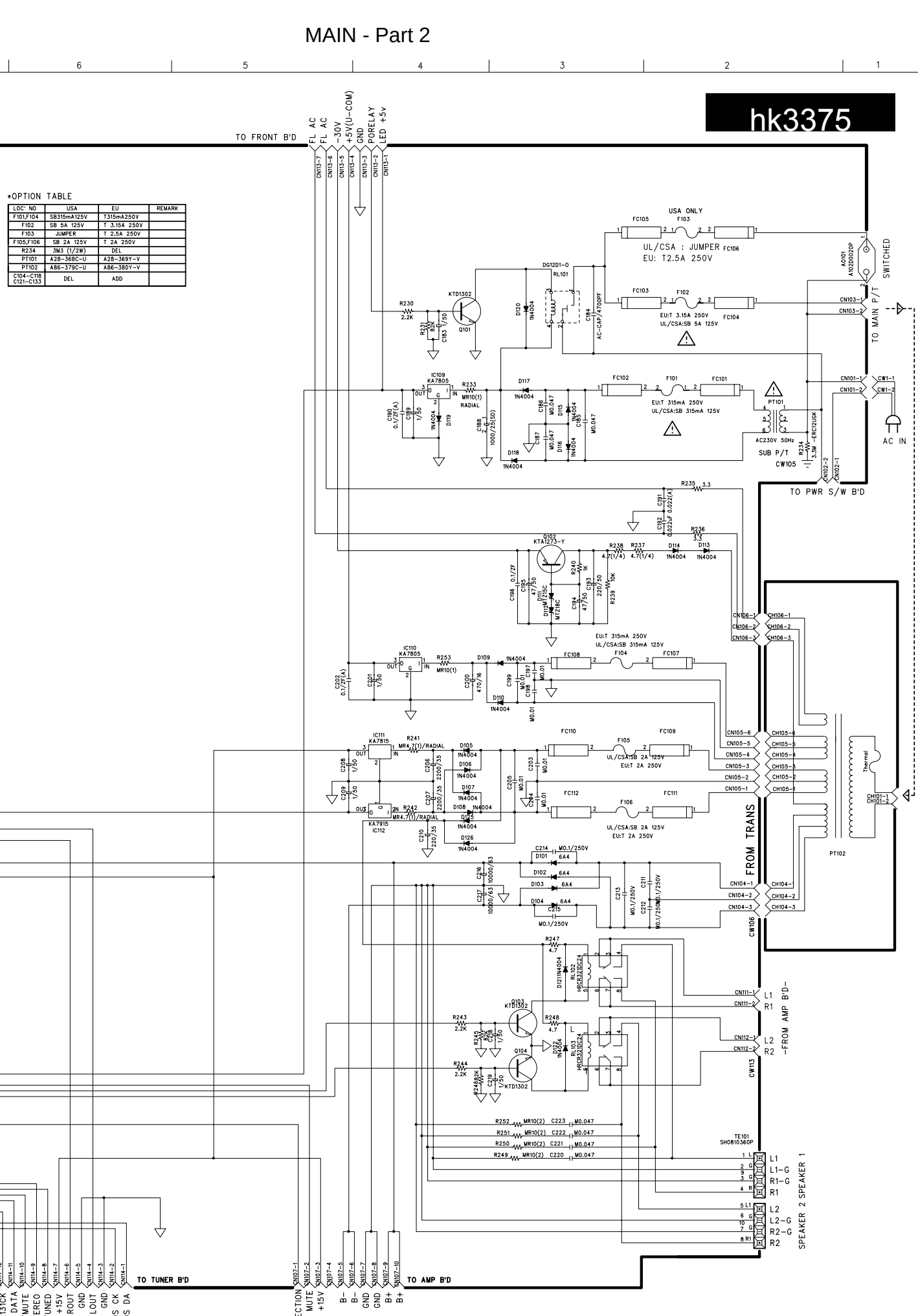


MAIN - Part 2

hk3375

*OPTION TABLE

LOC' NO	USA	EU	REMARK
F101,F104	SB315mA125V	T315mA250V	
F102	SB 5A 125V	T 3.15A 250V	
F103	JUMPER	T 2.5A 250V	
F105,F106	SB 2A 125V	T 2A 250V	
R234	3M3 (1/2W)	DEL	
PT101	A28-368C-U	A28-369Y-V	
PT102	A86-379C-U	A86-380Y-V	
C104-C118 C121-C133	DEL	ADD	



SCHEMATIC DIAGRAM
MAIN

hk3475

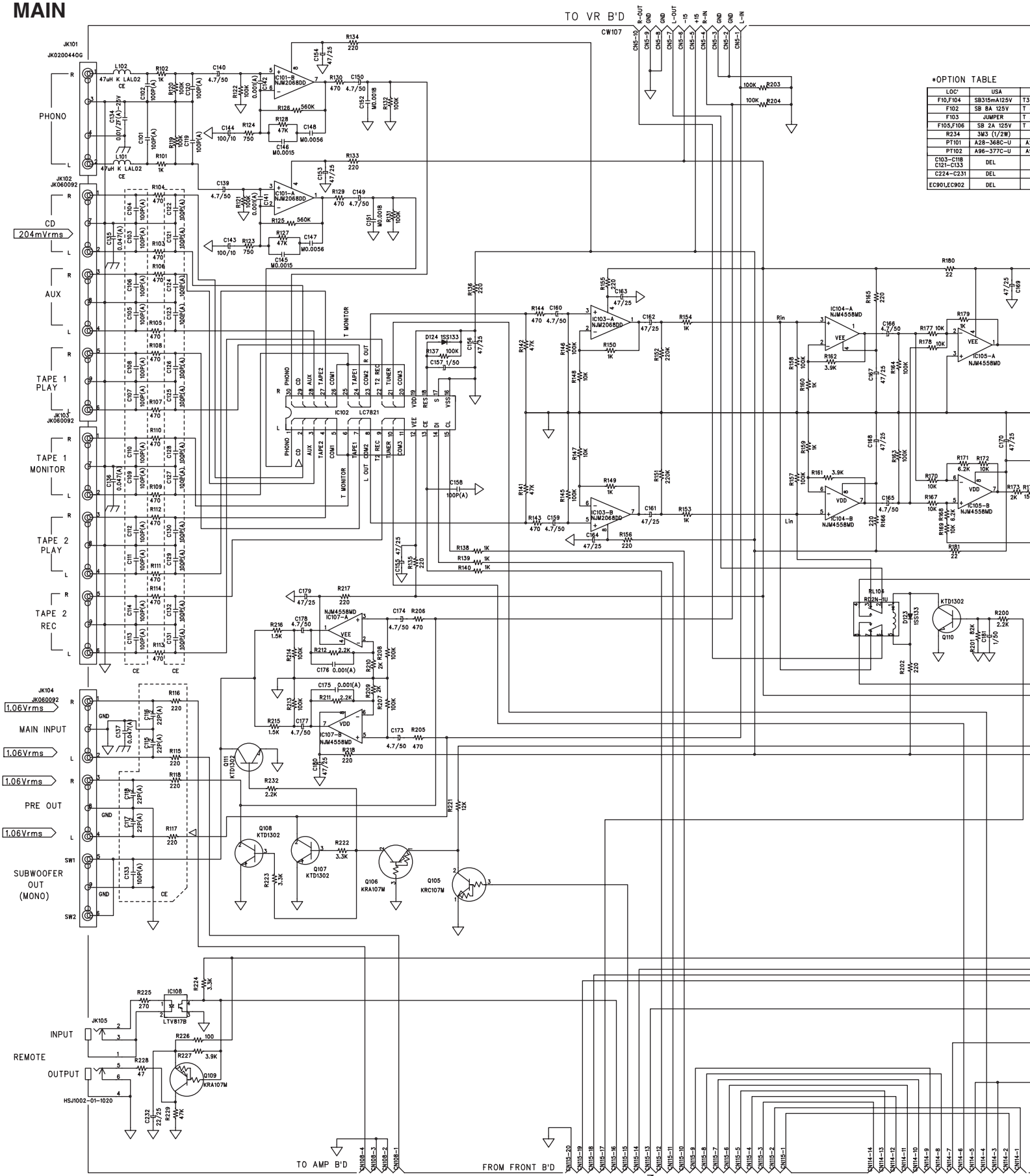
*OPTION TABLE

LOC'	USA	EU	REMARK
F10,F104	SB315mA125V	T315mA250V	
F102	SB 8A 125V	T 4A 250V	
F103	JUMPER	T 2.5A 250V	
F105,F106	SB 2A 125V	T 2A 250V	
R234	3W3 (1/2W)	DEL	
PT101	A28-368C-U	A28-369Y-V	
PT102	A96-377C-U	A96-378Y-V	
C103-C118 C121-C133	DEL	ADD	
C224-C231	DEL	ADD	
EC901,EC902	DEL	ADD	

SCHEMATIC DIAGRAM
MAIN

hk3475

Part 1



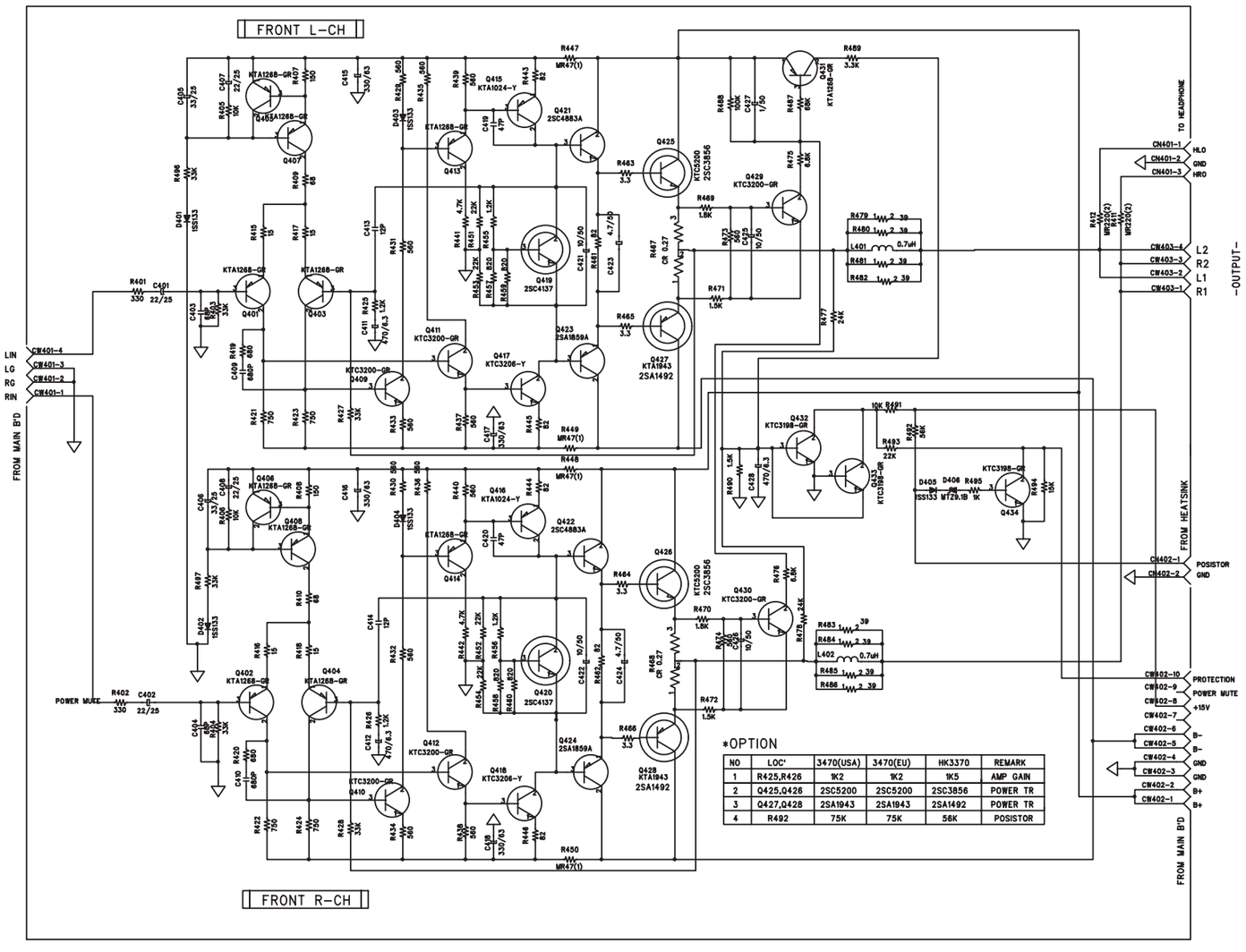
hk3475

*OPTION TABLE

LOC'	USA	EU	REMARK
F10,F104	SB315mA125V	T315mA250V	
F102	SB 8A 125V	T 4A 250V	
F103	JUMPER	T 2.5A 250V	
F105,F106	SB 2A 125V	T 2A 250V	
R234	3M3 (1/2W)	DEL	
PT101	A28-368C-U	A28-369Y-V	
PT102	A96-377C-U	A96-378Y-V	
C103-C118 C121-C133	DEL	ADD	
C224-C231	DEL	ADD	
EC901,EC902	DEL	ADD	

SCHEMATIC DIAGRAM
AMP/TONE/ETC.

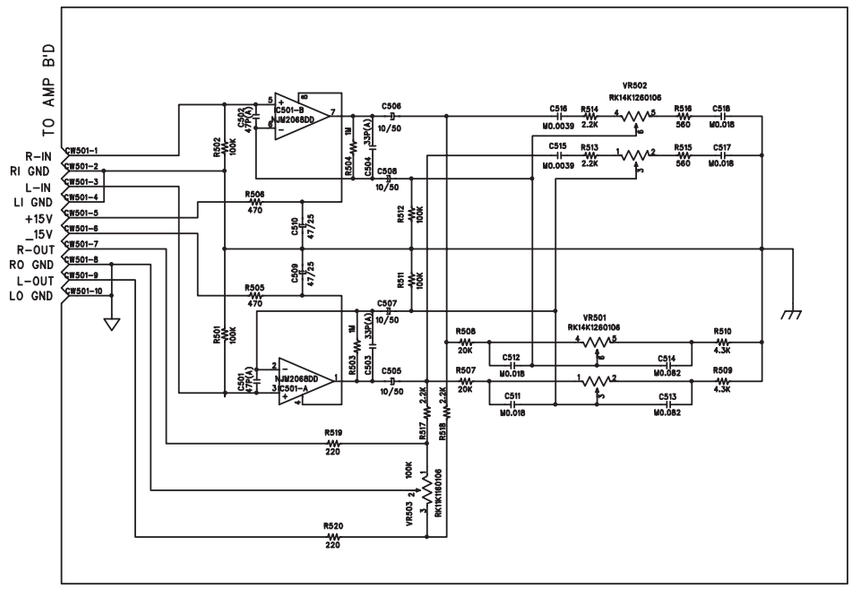
POWER AMP

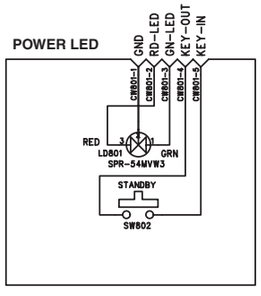


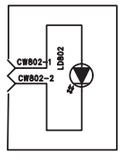
*OPTION

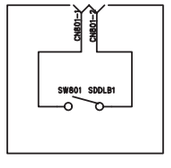
NO	LOC'	3470(USA)	3470(EU)	HK3370	REMARK
1	R425,R426	1K2	1K2	1K5	AMP GAIN
2	Q425,Q426	2SC5200	2SC5200	2SC3856	POWER TR
3	Q427,Q428	2SA1943	2SA1943	2SA1492	POWER TR
4	R492	75K	75K	56K	POSISTOR

TONE









SCHEMATIC DIAGRAM
FRONT

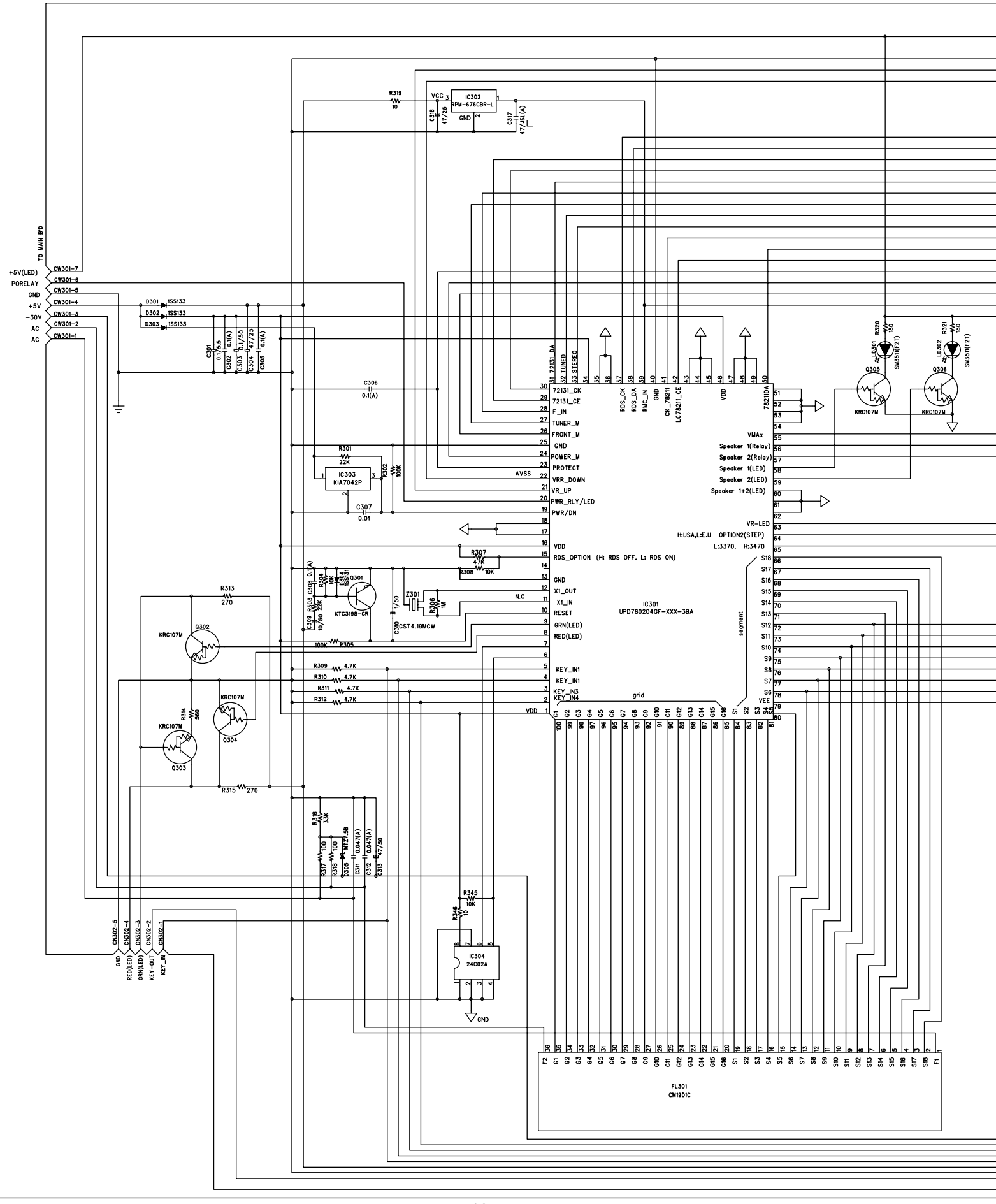
hk3375/hk3475

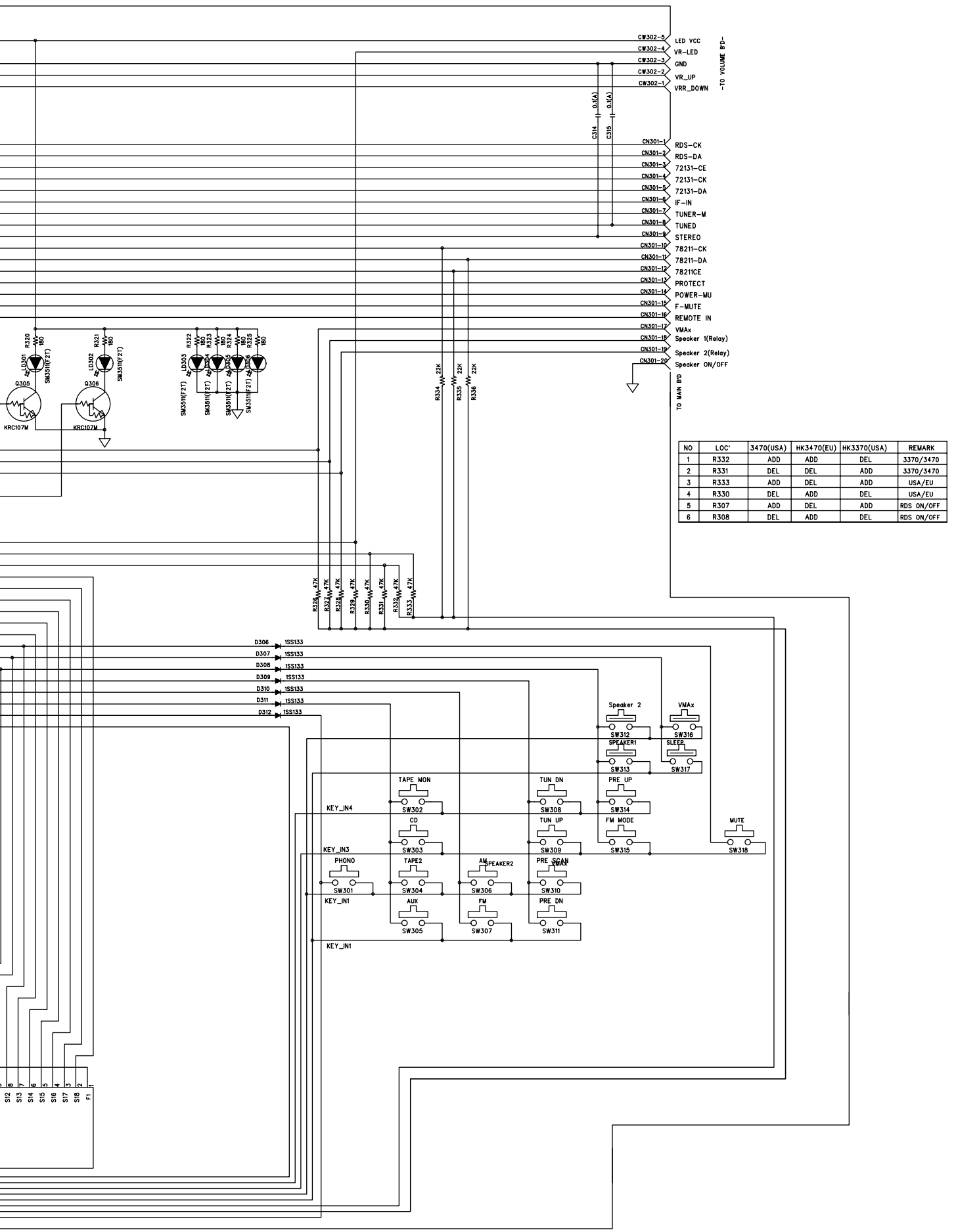
NO	LOC'	3470(USA)	HK3470(EU)	HK3370(USA)	REMARK
1	R332	ADD	ADD	DEL	3370/3470
2	R331	DEL	DEL	ADD	3370/3470
3	R333	ADD	DEL	ADD	USA/EU
4	R330	DEL	ADD	DEL	USA/EU
5	R307	ADD	DEL	ADD	RDS ON/OFF
6	R308	DEL	ADD	DEL	RDS ON/OFF

SCHEMATIC DIAGRAM
FRONT

hk3375/hk3475

Part 1



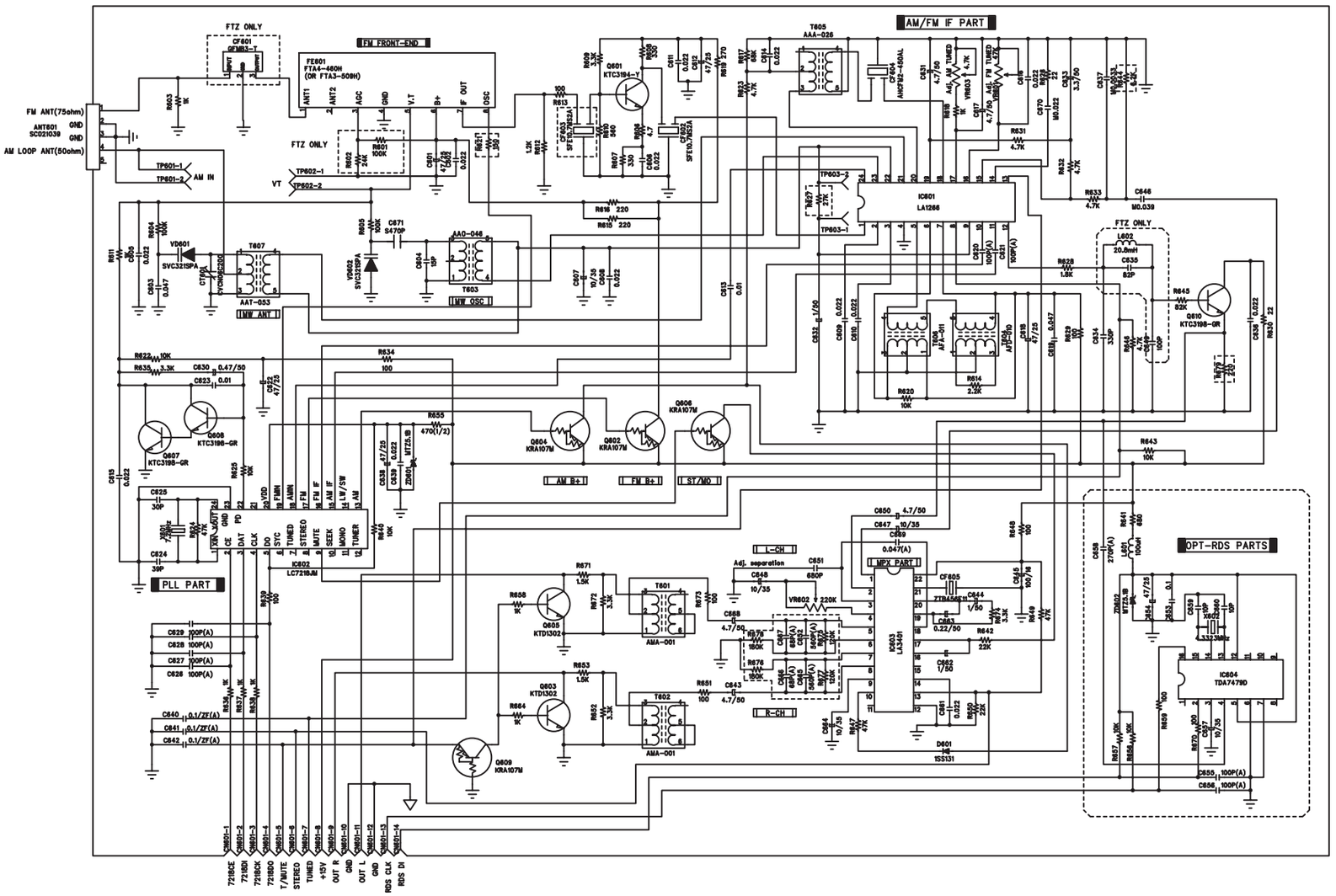


NO	LOC'	3470(USA)	HK3470(EU)	HK3370(USA)	REMARK
1	R332	ADD	ADD	DEL	3370/3470
2	R331	DEL	DEL	ADD	3370/3470
3	R333	ADD	DEL	ADD	USA/EU
4	R330	DEL	ADD	DEL	USA/EU
5	R307	ADD	DEL	ADD	RDS ON/OFF
6	R308	DEL	ADD	DEL	RDS ON/OFF

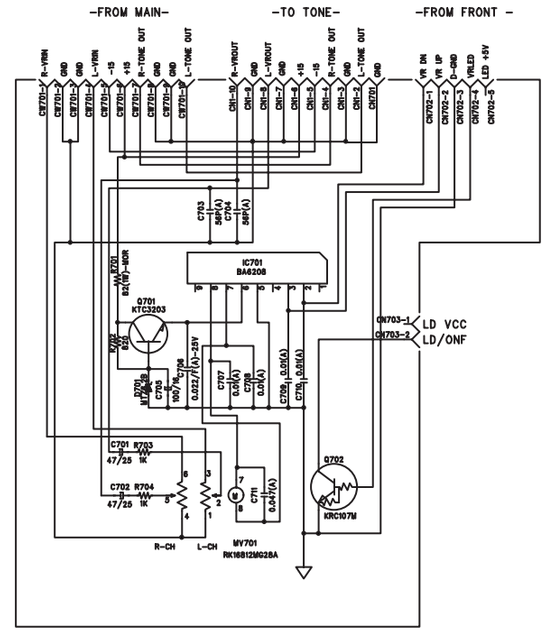
SCHEMATIC DIAGRAM
TUNER/VR/HP

hk3375/hk3475

TUNER

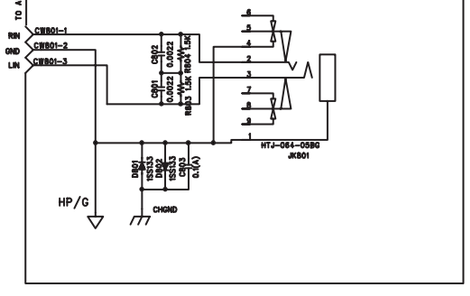


LOC NO	USA	EU
ANT601	SC0210 393FN	SC0210 392DN
CF601	X	0
JW16	0	X
FE601	FTA3-509HA	FTA4-460H
JW17	0	X
R602 R601	X	0
C635 C649	X	0
R644	6.2K	1.5K
L602	X	0
JW1	0	X
R675 R677	120K	220K
C652 C665	560P(A)	220P(A)
C666 C667	68P(A)	10P(A)
R676 R678	180K	270K
R627	27K	47K
R621	470	150
CF603	SFE 10.7MS2A	SFE 10.7MJA
RDS	X	0

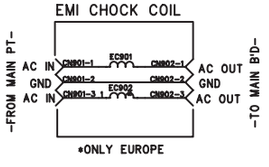


HEAD PHONE

LOC.	AVR100	AVR200/100RDS
R729 R730	MR220 (2W)	MR470 (2W)

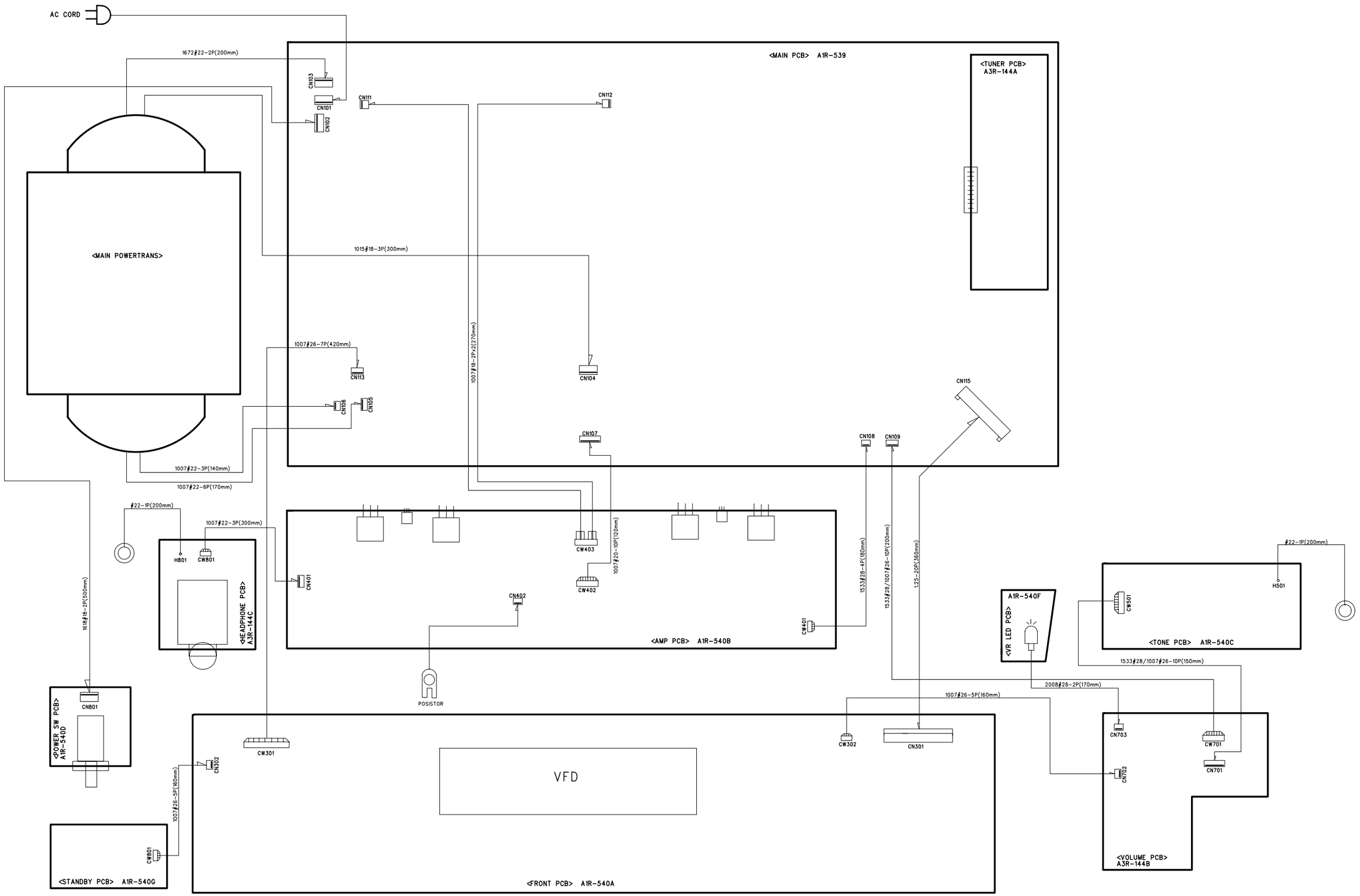


EMI CHOCK COIL

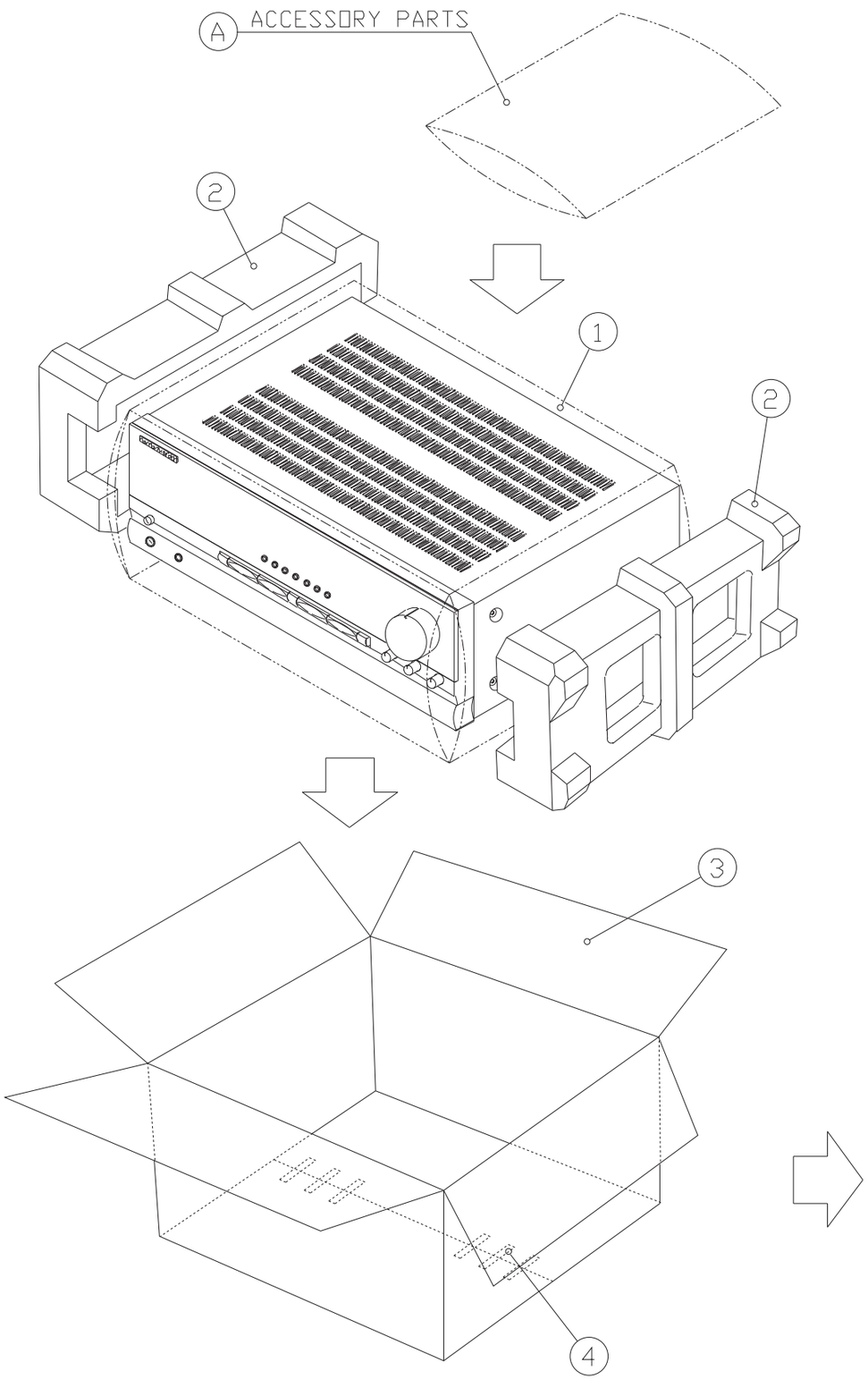


WIRING DIAGRAM

hk3375/hk3475

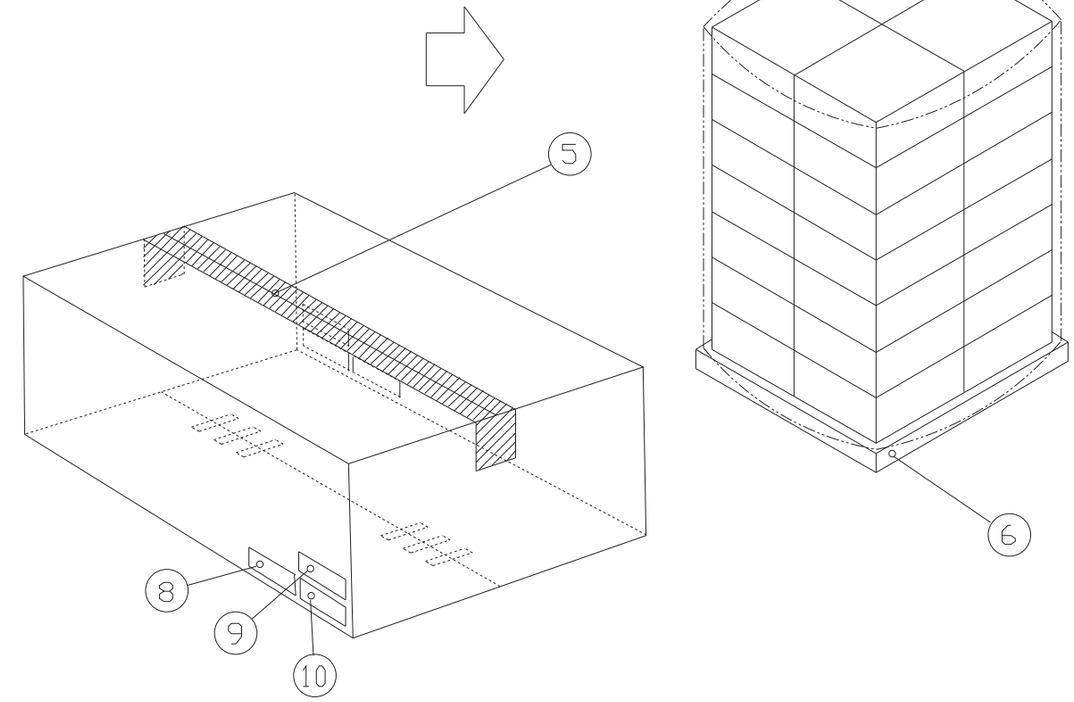


PACKING MATERIAL



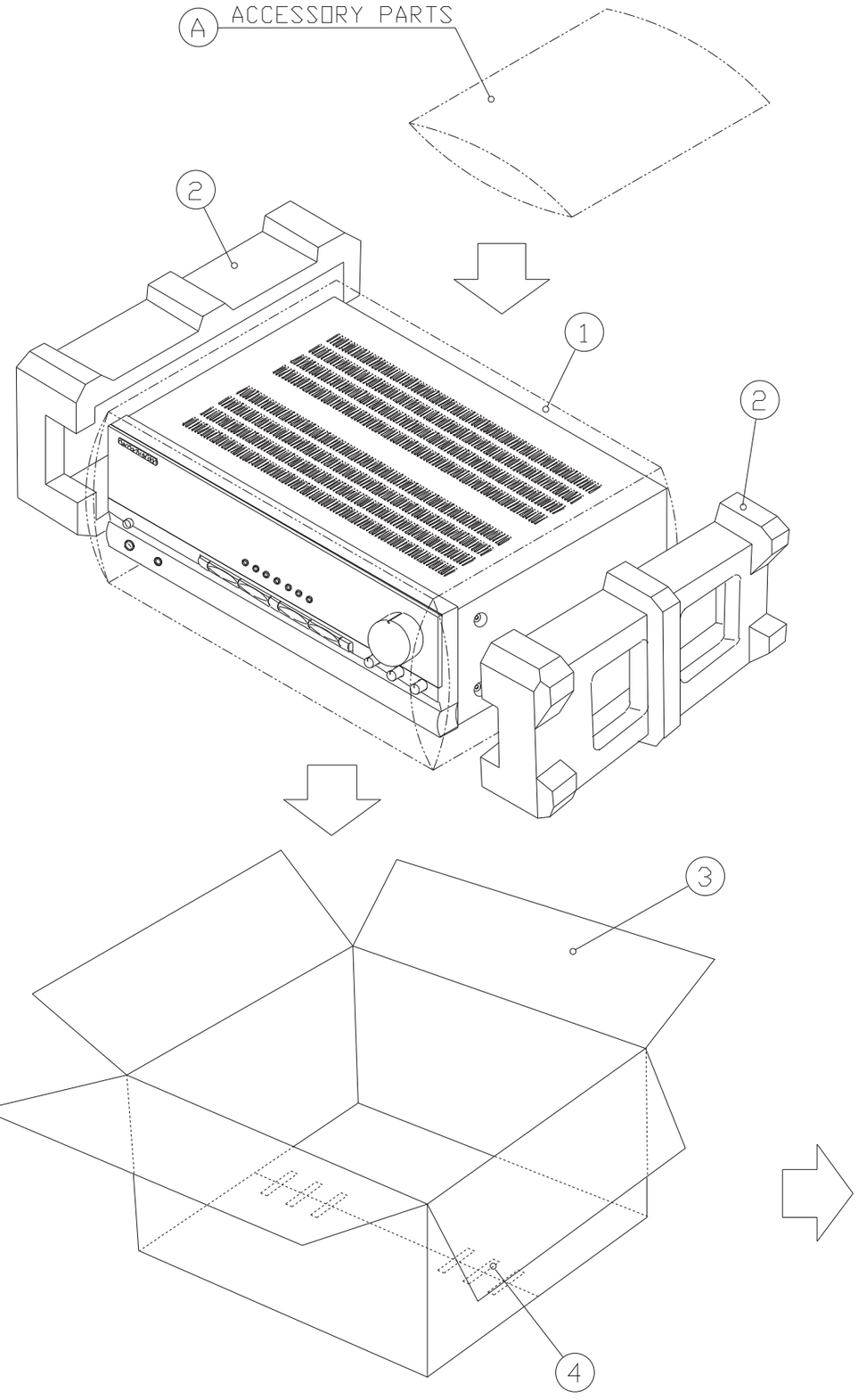
PACKING MATERIAL

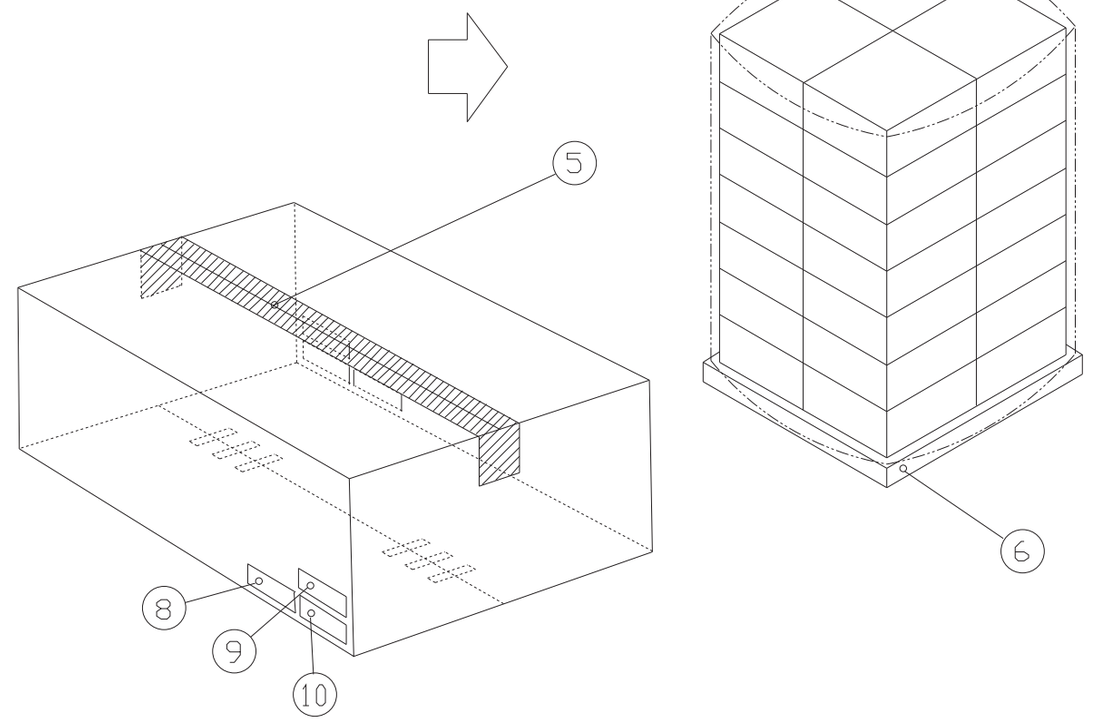
NO	PARTS NAME	PART NO	Q'TY	REMARK
A	POLY-BAG-I(G)		1	***
	INST-MANUAL	YIAR-K2002-03A	1	***
	REMOTE CONTROL ASS'y	HG5E04	1	***
	WARRANTY CARD	YWAR-K2001-02A	1	***
	BATTERY MANGANESE		2	***
	ANTENNA-T TYPE	ANTT-00054-075	1	***
	ANTENNA-LOOP	ANTL-00060-E50	1	***
	TRANSFORMER-MATCHING	TFMA-00100-D00	1	***
1	TOILON-SHEET		1	***
2	CUSHION-L/R	YSAP-12070-002	2	EPS
3	BOX-GIFT	YGAP-14860-104	1	DW2
4	AIR-STAPLES		6	STEEL
5	TAPE-OPP		*	***
6	PALLETS		*	***
7	WRAP		*	***
8	LABEL-CODE39		2	***
9	LABEL-UPC		2	***
10	LABEL-SERIAL NO		2	***



PACKING MATERIAL

hk3475



PACKING MATERIAL

NO	PARTS NAME	PART NO	Q'TY	REMARK
A	POLY-BAG-I(G)		1	***
	INST-MANUAL	YIAR-K1002-03A	1	***
	REMOTE CONTROL ASS'y	HG5G02	1	***
	WARRANTY CARD	YWAR-K1001-02A	1	***
	BATTERY MANGANESE		2	***
	ANTENNA-T TYPE	ANTT-00054-075	1	***
	ANTENNA-LOOP	ANTL-00060-E50	1	***
	TRANSFORMER-MATCHING	TFMA-00100-D00	1	***
1	TOILON-SHEET		1	***
2	CUSHION-L/R	YSAP-12070-002	2	EPS
3	BOX-GIFT	YGAP-14860-114	1	DW2
4	AIR-STAPLES		6	STEEL
5	TAPE-OPP		*	***
6	PALLETS		*	***
7	WRAP		*	***
8	LABEL-CODE39		2	***
9	LABEL-UPC		2	***
10	LABEL-SERIAL NO		2	***